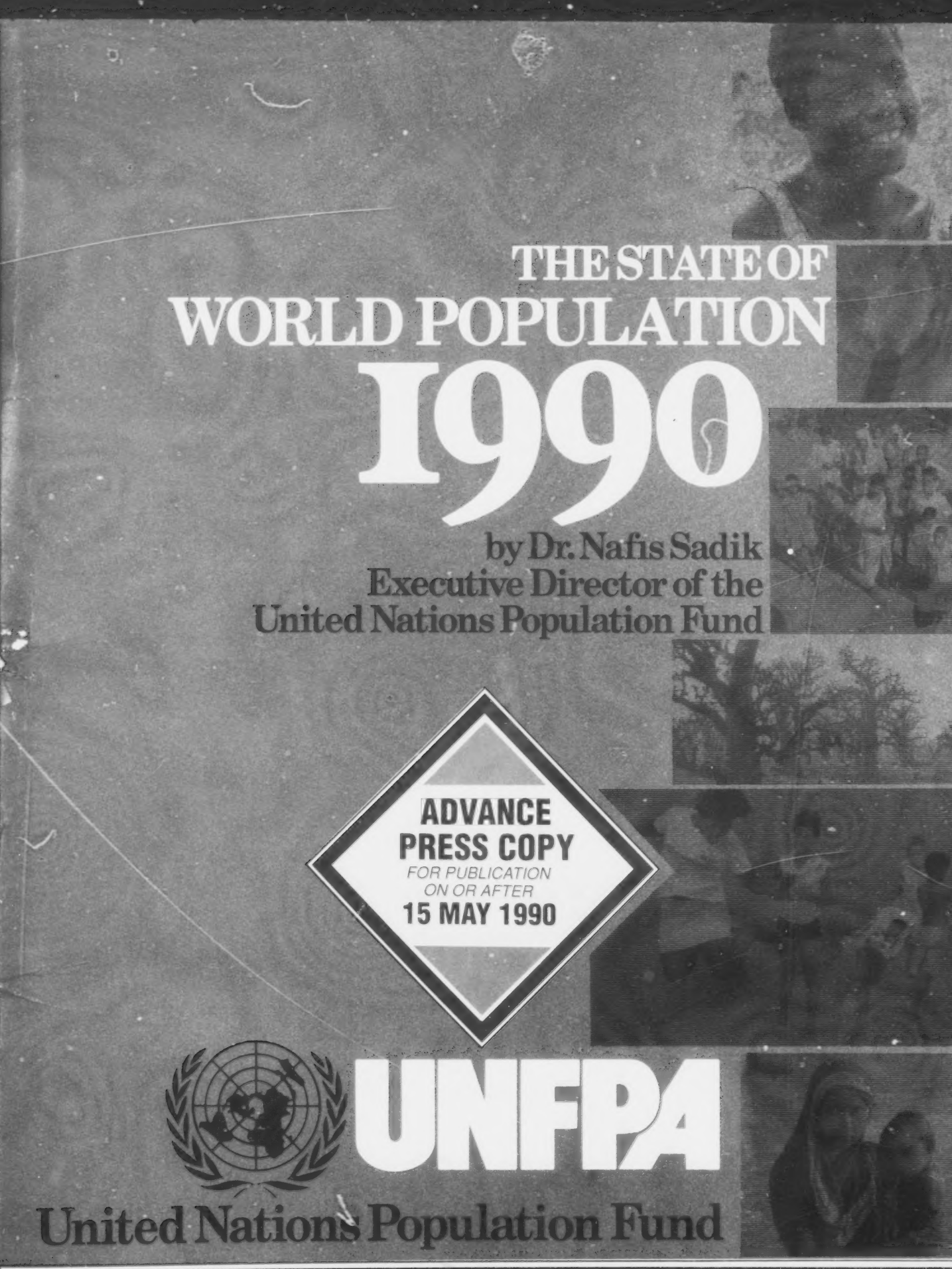
THE STATE OF WORLD POPULATION 1990

by Dr. Nafis Sadik
Executive Director of the
United Nations Population Fund



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"... fast population growth in poor countries has begun to make permanent changes to the environment. During the 1990s these changes will reach critical levels. At the start of the 1990s the choice must be to act decisively to stop population growth, attack poverty and protect the environment. The alternative is to hand on to our children a poisoned inheritance."

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CHOICES FOR THE NEW CENTURY

INTRODUCTION

THE 1990s will be a critical decade. The choices of the next ten years will decide the speed of population growth for much of the next century; they will decide whether world population trebles or merely doubles before it finally stops growing; they will decide whether the pace of damage to the environment speeds up or slows down.

The next ten years will decide the shape of the 21st century. They may decide the future of the earth as a habitation for humans.

The 1990s will see faster increases in human numbers than any decade in history.

The world's population, now 5.3 billion, is increasing by three people every second – about a quarter of a million every day. Between 90 and 100 million people – roughly equivalent to the population of eastern Europe or central America – will be added every year during the 1990s; a billion people – a whole extra China – over the decade.

The fastest growth will come in the poorest countries.

From a regional perspective, the biggest increases will come from southern Asia and Africa. Southern Asia, with almost a quarter of the current total world population, will account for 31 per cent of the total increase between now and the end of the century: Africa, with 12 per cent of the world's population today, will account for 23 per cent of the increase. By contrast, eastern Asia, which has another 25 per cent of the current world population, will only account for 17 per cent of the total increase. Similarly, the developed countries – Europe (including the Soviet Union), north America, and Japan, which represent 23 per cent of the current world population, will account for only 6 per cent of the increase.

The remaining 15 per cent of the world's population, living in developing countries, will produce 23 per cent of the increase.

By and large, the biggest increases will be in the poorest countries – those by definition least equipped to meet the needs of the new arrivals and invest in the future.

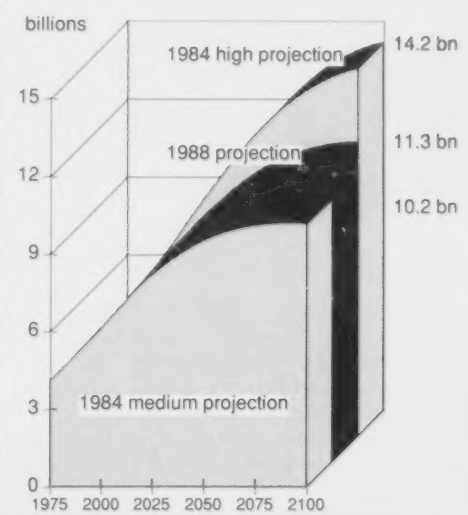
The numbers of poor, hungry and illiterate people will rise.

Between 1979-81 and 1986-7 cereal production per person actually declined in 51 developing countries and rose in only 43. The total number of malnourished increased from 460 million to 512 million, and is projected to increase further to 532 million plus by the end of the century.

The total number of children out of school grew from 284 million in 1970 to 293 million in 1985, and is projected to rise further to 315

CHART 1

World population projections



1988 figures after 2025 guestimates, for comparison only.
Source: United Nations

million by the end of the century. Also between 1970 and 1985:

The total number of illiterates rose from 742 million to 889 million;

The total number of people without safe sanitation increased from 1034 million to 1750 million.

All this at a time when solid progress was being made in improving health, education, and nutrition. Fertility and family size have both fallen. The number of people using family planning, and the number of governments supporting it, have risen substantially in the last two decades. The trend will continue. But in the most vulnerable countries and regions, whatever gains were made have been eaten away by increasing numbers.

These increasing numbers are eating away at the earth itself. The combination of fast population growth in poor countries has begun to make permanent changes to the environment. During the 1990s these changes will reach critical levels. They include continued urban growth; degradation of land and water resources; massive deforestation; and buildup of "greenhouse gases".

Many of these changes are now inevitable because they were not foreseen early enough, or because action was not taken to forestall them. Our options in the present generation are narrower because of the decisions of our predecessors. Our range of choice, as individuals or as nations, is narrower and the choices are harder.

The 1990s will decide whether the choices for our children narrow yet further – or open up. We know more about population – and interactions between population, resources and the environment – than any previous generation. We have the basis for action. Failure to use it decisively will ensure only that the problems become much more severe and much more intractable, the choices harder and their price higher.

At the start of the 1990s the choice must be to act decisively to slow population growth, attack poverty and protect the environment. The alternative is to hand on to our children a poisoned inheritance.

Danger signals

Just a few years ago, in 1984, it seemed as if the rate of population growth was slowing everywhere except Africa and parts of South Asia. The world's population seemed set to stabilize around 10.2 billion towards the end of the next century.

Today, the situation looks less promising. Progress in reducing birth rates has been slower than expected. According to the latest United Nations projections, the world has overshot the marker points of the 1984 "most likely" medium projection, and is now on course for an eventual total that will be closer to 11 billion than to 10 billion.

In fifteen countries – thirteen of them in Africa – birthrates actually rose between 1960-65 and 1980-85. In another 23 the birth rate fell by less than two per cent.

If fertility reductions continue to be slower than projected, the mark could be missed yet again. In that case the world could be headed towards an eventual total of up to 14 billion people.

Why should we be worried about this?

At present the human race numbers "only" 5.3 billion, of which about a billion live in poverty. Can the earth meet even modest aspirations for the "bottom billion", let alone those of the better-off and their descendants, without irreparable damage to its life-support systems?

Already our impact has been sufficient to degrade the soils of millions of hectares, to threaten the rainforests and the thousands of species they harbour, to thin the ozone layer, and to initiate a global warming whose full consequences cannot yet be calculated. The impact has greatly increased since 1950.

By far the largest share of resources used, and waste created, is currently the responsibility of the "top billion" people, those in industrialized countries. These are the countries overwhelmingly responsible for damage to the ozone layer and acidification, as well as for roughly two-thirds of global warming.

However, in developing countries the combination of poverty and population growth among the "bottom billion" is damaging the environment in several of the most sensitive areas, notably deforestation and land degradation. Deforestation is a prime source of carbon dioxide, one of the principal "greenhouse gases" responsible for global warming. Rice paddies and domestic cattle – food suppliers for 2 billion people in developing countries – are also major producers of methane, another of the greenhouse gases.

Developing countries are also doing their best to increase their share of industrial production and consumption. Their share of industrial pollution is rising, and will continue to rise.

Developed or developing, the more people the more pollution: at any level of development larger numbers consume more resources and produce more waste.

A case for change

Redressing the balance demands action in three major areas:

– firstly, a shift to cleaner technologies, energy efficiency and resource conservation by all countries, but especially the richer quarter of the world's population;

– secondly, a direct and all-out attack on poverty itself;

– thirdly, it demands reductions in overall rates of population growth; *reducing population growth, especially in the countries with the highest rates of growth, will be a crucial part of any strategy of sustainable development.*

The quality of human life is inseparable from the quality of the environment. It is increasingly clear that both are inseparable from the question of human numbers and concentrations. One of the

clearest lessons of the last two decades of work in population is that investments in human resource development – for example improvements in women's status, access to education, health and the means of family planning – not only improve the quality of life, but are also the best and quickest way to reduce population growth rates. By opening up options in the present, they open up options for the future.

Investment in human resources provides a firm base for rapid economic development, and could have a significant impact on the environmental crisis. It is essential for global security. But in the past it has often commanded a lower priority than industry, agriculture, or military expenditure.

It is time for a new scale of priorities: there is no other sphere of development where investment can make such a large contribution both to the options and quality of life, both in the present and in the future.

PART ONE: THE CHALLENGES AHEAD

1. THE POPULATION SITUATION

Past progress

DESPITE all setbacks the past two decades have seen faster advances in social development than any previous generation.

Life expectancy in developing countries increased from 51 for men and 53 for women in 1965-1970, to 59 and 61 in 1985-1990. In 1965, for every 1,000 children born worldwide, 103 died before their first birthday. By 1985-1990 the yearly toll had been cut to 71. Average daily calorie intakes jumped from 2,116 in 1965 to 2,509 two decades later.

Progress in education has been even more marked. The proportion of six-to-eleven year-olds enrolled in primary school rose from 78 per cent in 1965 to 103 per cent in 1986. Secondary enrolment rates almost doubled, from 22 per cent to 40 per cent, over the same period. Literacy rates among adults rose from 61 per cent in 1965, to 72 per cent twenty years later.

Family planning has spread rapidly. From only 9 per cent in 1960-65, contraceptive prevalence in developing countries has risen to an estimated level of 50 per cent in 1990.

East Asia's advances have been most spectacular. Usage rose from 13 per cent in 1960-65 to around 74 per cent today – higher than the developed country average. Contraceptive prevalence in Latin America has quadrupled, from 14 per cent to 56 per cent, over the same period.

There has been a corresponding drop in fertility and in birth rates. Globally, the typical number of children each fertile woman would bear over her lifetime, on current patterns, has fallen from almost 5 in 1960-65 to just over 3.4 now. The drop in developing countries was steeper – from over 6 to 3.9.

A number of countries recorded striking declines in the birth rate over extended periods. Cuba's birth rate dropped from 35 to 15 over the twenty years to 1980-85, Mauritius' from 42.5 to 22.5, China's from 38 to 19. A total of 27 countries enjoyed falls in their birth rate of 25 per cent or more during this period.

The concept of population planning and family planning has gained wide acceptability and increasing political support. In 1978 only 45 governments considered their population growth rates too high. By 1988 this number had risen to 67, accounting for over 85 per cent of the population of developing countries.

Government backing for population programmes and activities has grown in tandem with this awareness. The number of governments who provided direct support for family planning rose from 97 in 1976 to 125 in 1988. Governments limiting access to family planning fell from 15 in 1976 to only seven in 1988.

Some of these recent advances in political support have occurred in the areas of slowest progress in previous years. In Africa a trickle of governments acknowledging the crucial importance of the topic is turning into a stream. The number of African governments who considered their population growth rates too high almost doubled, from 16 in 1978 to 30 in 1988. Nigeria announced a strong national population policy in 1988. Zambia's fourth national development plan launched in 1989 included specific and ambitious family planning and population targets.

Support also grew at the international level. Perhaps the most encouraging recent example of this was the striking consensus achieved by representatives from 79 nations at the International Forum on Population in the Twenty-first Century held last November in Amsterdam. That conference proposed several targets for the end of the century, including an overall reduction in fertility levels; reductions in early marriage and teenage pregnancy; raised contraceptive prevalence levels; and a wide range of measures in improved population programmes and activities and other human resource areas. Some of the Forum's major recommendations are incorporated in this report (see Amsterdam Declaration, page 7).

Lost opportunities in family planning

Yet causes for serious concern remain. The total number of people suffering absolute poverty has increased (see box 1).

Progress in family planning has also been mixed. Though overall use had grown to about 45 per cent of fertile women in developing countries in 1983, still only 34 per cent in south Asia were using modern contraception, and a mere 14 per cent or so in Africa (see chart 2). If China (where modern contraception is virtually universal) is taken out of the calculation, the proportion of users in developing countries falls to below 40 per cent.

In recent years a number of countries which registered very respectable advances in contraceptive use and lower birth rates in the late 1960s or early 1970s have found further progress difficult. They include India, the Philippines and Morocco, and some early high performers like Tunisia, Trinidad and Tobago, Costa Rica, and Colombia. Each of these had shaved around one point off their birth rate every year between 1960-65 and 1970-75, but only one tenth to one third of a point per year in the following decade.

In some cases this can be traced to reduced family planning effort because of slackening political support. In others recession retarded development, while the debt burden forced cutbacks in government spending on family planning, health and education.

In many cases it has proved relatively easy to cut the fertility rate from six children per woman to four, mainly by providing services for pre-existing need which was not being met. It has often proved much harder to pull off the next phase of cutting fertility from four to two, since this requires a deeper change in desired family sizes (see box 2).

The overall effect of these individual country slowdowns was to slow global progress. Between the early and late 1970s total fertility dropped by almost 14 per cent worldwide: over the next ten years the fall was less than half as fast.

Towards 2025.

These slowdowns have forced the United Nations to reassess the prospects for the world's population. In 1986, it projected that the world would house 6,122 million people by the end of the century, on the most probable trends. Last year it had to raise that figure to 6,251 million – an extra 129 million (roughly equal to the population of Japan) added to the total. Looking further ahead, to 2025, the United Nations now expects 8,467 million people – 260 million more than it predicted five years ago, or more than the present population of the USA.

The main change from previous expectations was in south Asia. Fertility had fallen from 6 children per woman in 1965-70 to 5.3 in 1975-80. But over the next five years 1980-85 it fell only slightly, to 5.1.

The consequences of this five-year plateau are serious. *For India, it means a probable 1,446 million people instead of 1,229 million by 2025, 216 million more people than if progress had been maintained. Pakistan's 2025 population will be 267 million, instead of 210 million. Such is the heavy price of delay in population efforts.*

People born this year will be only 35 in 2025. Yet they will mature in a very different world. On present trends there will be 3,174 million more

BOX 1

Running to stand still

ABSOLUTE poverty has shown a dogged tendency to rise in numerical terms. The poorest 20 per cent of the population still (1985) dispose of only 4 per cent of the world's wealth, the richest 20 per cent of 58 per cent. Economic recession, rising debt burdens and mistaken priorities have reduced social spending in many countries.

But population growth at over 2 per cent annually has also slowed social progress. So much additional investment has been required to increase the quantity of health, education and other services, to meet the needs of increased populations, that the quality of service has suffered.

In many sectors, the *proportion* of deprived people declined. But this was a reduced proportion of a higher *total* population swelled by rapid growth. As a result the total *numbers* of deprived have grown.

Between 1970 and 1985, for example, there was a massive jump in the numbers of primary pupils from 395 million to 665 million. Secondary enrolment grew even faster, from 79 million to 175 million. *Yet despite this immense effort of investment and organization, the total number of children out of school grew, from 284 million in 1970 to 293 million in 1985, and is projected to rise further to 315 million by the end of the century.*

The proportion of adult illiterates in the world dropped from 32 per cent to 28 per cent over this same period. *But because of population growth the total number of illiterates rose from 742 million to 889 million.*

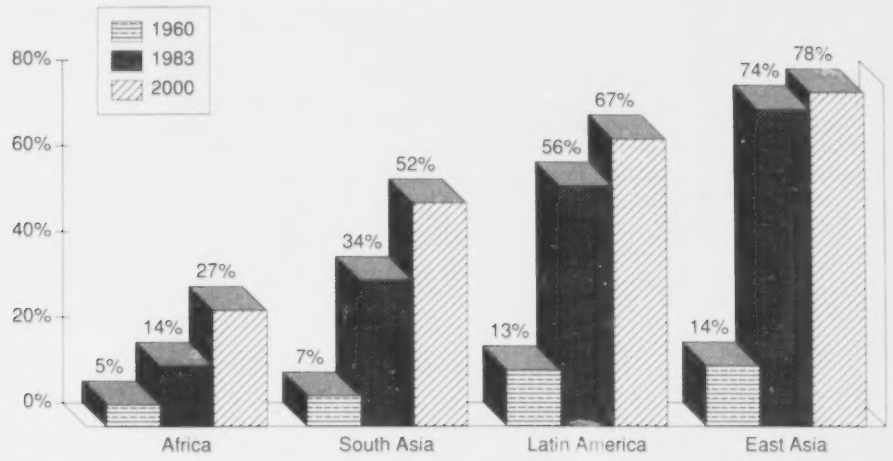
There was little or no progress in reducing the proportion of people without safe sanitation. *As a result, the total number increased by 716 million, from 1034 million to 1750 million.*

The incidence of malnutrition declined, from 27 per cent of people in developing countries in 1969-71 to 21.5 per cent in 1983-85. *But because of population growth the total number of malnourished increased from 460 million to 512 million, and is projected to increase further to 532 million plus by the end of the century.*

Racing to provide services to fast growing populations is like running up the down escalator: you have to run very fast indeed to maintain upward motion. So far all the effort put into social programmes has not been quite enough to move upwards in numerical terms. The absolute total of human deprivation has actually increased, and unless there is a massive increase in family planning and other social spending, the future will be no better.

CHART 2

Percentage of fertile women using contraceptives



Source: UN Population Division

people – equivalent to the population of the whole world in 1960.

The aging of the North

A mere 147 million of that increase – less than 5 per cent – will be in today's industrialized countries, almost all in the northern hemisphere. Growth will be the result of falling death rates as people live longer. Life expectancy is expected to rise from 73 years today to almost 79.

The elderly will make up a growing share of the population. The over-60s make up around 17 per cent of industrialized countries' population now. By 2025, they will account for more than a quarter, with all that means in increased costs of health care and the burden of social security on younger age-groups. The proportion of over-65s will also increase, from 12 per cent now to 17 per cent in 2025.

Birth rates in most of the industrialized countries have now fallen below "replacement level" – the number of children that couples must have if they are to replace themselves. The average is now down to 1.9 children per woman. The western European mean is only 1.58. Only immigration prevents population decline in Denmark, Sweden, Austria and west Germany. In eastern Europe, birth rates are at historically low levels.

BOX 2

Stalled progress in Costa Rica.

COSTA RICA recorded a rapid drop in fertility between 1960 and 1975, from 7.3 births per woman to 3.8. After that it plateaued for at least ten years, and was still at 3.6 in 1986.

Yet there was still a high level of unwanted births, averaging almost one extra child per woman over the plateau period.

A study by Murray Gendell of Georgetown University suggests that the chief reason for the plateau may have been a fall-off in political support for family planning. A court judgement holding that the IUD was an abortifacient, though later reversed, may have damaged the image of family planning. There was no official policy to reduce births. Sterilization remained difficult to obtain. The proportion of women getting their contraceptives from the public sector dropped steeply. The number of new users served by the national programme dropped from 31,000 in 1976 to 20,000 in 1980. Among women exposed to the possibility of pregnancy, the level of unmet need for contraception rose from 12 per cent to 17 per cent.

The crowded South.

No less than 95 per cent of the global population growth over the next thirty-five years will be in the developing countries of Africa, Asia and Latin America.

It is more than twenty years since the population growth *rate* of developing countries reached its peak, in 1965-70. But it will only be during the last five years of this century that the additions to total *numbers* in developing countries will reach their maximum. This thirty-year lag is a powerful demonstration of the steamroller momentum of population growth.

The regional picture has become very diverse. Latin America is currently growing at 2.1 per cent a year – but that average encompasses Uruguay, where the growth rate is less than 1 per cent, the Caribbean, growing at 1.45 per cent a year, Central America, growing at 2.3 per cent, and at the other end of the scale Paraguay, where growth is over 3 per cent. The region's total population is projected to expand from 448 million now to 760 millions in 2025.

Similar diversity can be found in Asia. While

east Asia's annual population growth rate has fallen to the low level of 1.3 per cent, and south-east Asia's has been tumbling to its current level of around 1.9 per cent, south Asia is still growing at 2.3 per cent a year. In absolute terms, south Asia is currently more or less the same size as east Asia at just over 1200 million. But faster growth will take it to 2,174 million in 2025 compared to 1,600 million in east Asia. Western Asia, at 2.7 per cent, has the fastest population growth of any region in the world outside Africa.

Africa can expect the most explosive growth. Only during the 1990s will the continent reach its fastest growth rates of around 3 per cent a year – the fastest rate in human history for an entire region. The annual additions to African numbers, already causing problems at their current level of 10 million, are not expected to peak until twenty years from now, when they may be running at 15 million. The total population is projected to grow from 648 millions now to 1,581 million by 2025.

Kenya has a population of 25 million, for example; the FAO estimates that even with European farming methods, the country could feed a maximum of 60 million people, and then only if every square metre of cultivable land were used for food crops. That level is likely to be reached before 2025, unless current trends can be corrected.

Because of the world's skewed growth patterns, the balance of numbers will shift radically. In 1950 Europe and north America constituted 22 per cent of the world's population. In 2025 they will make up less than 9 per cent. Africa, only 9 per cent of the world population in 1950, will account for just under a fifth of the 2025 total (see chart 3). India will overtake China as the world's most populous country by the year 2030.

Looking even further forward, towards the end of the twenty-first century, a number of countries seem set to face severe problems if populations grow as projected. Nigeria could have some 500 million citizens – as many as the whole of Africa around 1982. This would represent over ten people for every hectare of arable land. Modern France, with better soils and less erosion, has only three people per hectare. Bangladesh's 116 million inhabitants would grow to 324 million, with density on its arable land more than twice as high as the Netherlands today. This does not take into account any land that may be lost to sea-level rises caused by global warming. Nepal and Haiti, both steep and mountainous countries, could both have more people per hectare of potential farmland than the Netherlands today. It should be emphasized that these are not the most pessimistic projections. On the contrary, they assume steadily declining fertility during most of the next hundred years.

2. MEETING BASIC NEEDS

These are some of the most critical national examples. But can the world as a whole feed its future numbers? Can it provide them with land, jobs, shelter, education, health care? Can it meet even the most modest aspirations of ten billion or more people without doing terminal damage to its life-support systems?

During the first two development decades, there was a widespread belief in early and positive answers to these questions. That confidence disappeared during the third decade.

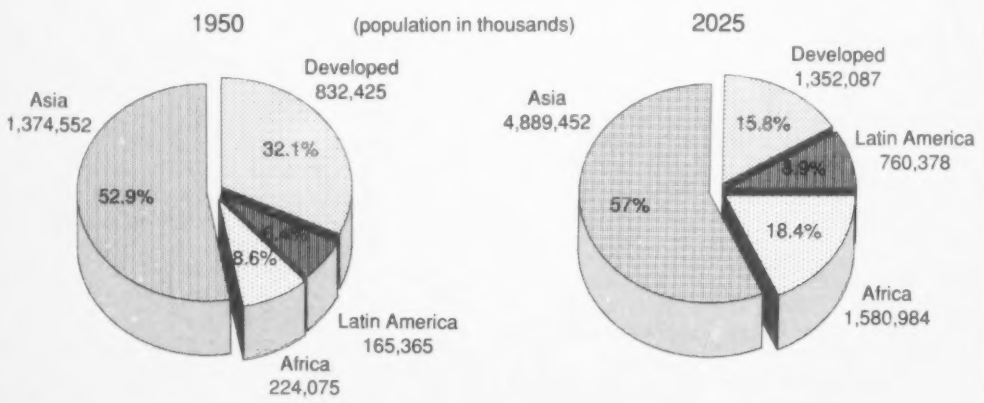
Food

So far, in global terms, the struggle to keep food production level with population growth has been won – but the continuing advance of population growth has made it a struggle, and the fight continues.

In many of the local battles, especially in developing countries where population growth is higher, food production is losing ground to population. Between 1979-81 and 1986-7 cereal production per person actually *declined* in 51 developing countries and rose in only 43, out of the 94 countries for which FAO data are available.

CHART 3

The geopolitical balance 1950 – 2025



Africa's predicament is well known. Here 25 countries out of 43 experienced a drop in per capita cereal production. But Latin America's performance was no better in country terms: 17 countries out of 23 suffered a drop.

Even the world rise in per capita production is not securely grounded. In 1988 the world grew 344 kg. of cereal per person. *This was lower than in any year since 1977.* The 1989 figure – 358 kg. per person – was 6 per cent down on the 1985 peak, and was lower than six out of the twelve previous years. Of course long-term trends cannot be forecast on the basis of only four years' data – there was a similar drop during the food crisis of the early seventies, followed by a recovery. But the potentially precarious nature of growth in per capita food production is clear.

Developing countries as a whole have suffered a serious decline in food self-sufficiency. Their cereal imports in 1969-71 were only 20 million tonnes. By 1983-85 they had risen to 69 million tonnes and are projected to total 112 million tonnes by the end of the century. These deficits have so far been met by corresponding surpluses in the industrialized countries – of which the overwhelming bulk come from North America.

World food security now depends shakily on the performance of North American farmers. Following the drought-hit US harvest of 1988, world cereal stocks dropped from 451 million tonnes in 1986-87 to only 290 million tonnes last year, down from a safe 24 per cent of annual consumption to the danger level of 17 per cent.

Land

There appears to be no global shortage of land theoretically capable of producing food, even for an eventual plateau population of 14 billion. The 1982 FAO/UNFPA study of population carrying capacity, still the only study of its kind, found that the lands of developing countries alone – excluding China – would be capable in theory of feeding 33 billion people.

This figure, however, could only be attained if every square metre of usable land was turned over to the production of a barely sufficient, mainly vegetarian diet, using large amounts of fertilizer and pesticides. And the overwhelming share of the surplus potential lies in the warm humid tropics. As these regions are sparsely populated, massive migrations of peoples would be needed to provide the necessary labour force, and most of the rainforests would have to be cleared.

This is of course neither desirable nor probable. Under more realistic conditions, with an intermediate level of farming inputs, the situation looks far less comfortable. No fewer than 36 countries with a population of 486 million will be unable to feed their year 2000 populations from their own lands.

The 1982 study also assessed which climatic zones were carrying more people than they could support. As early as 1975, almost 2.5 billion ha. – two fifths of the total land area – already housed more people than they could feed at a low level of farming inputs. The total population of these areas was 1,165 million people. The numbers they could sustainably feed with low inputs were only 563 million. For the most part these critical zones are semi-arid or mountainous areas, sensitive to erosion, and the population overload is likely to accelerate the pace of degradation.

A number of countries are certain to face

THE AMSTERDAM DECLARATION

THESE goals and targets were adopted by the Amsterdam Forum on Population in the 21st Century on 9 November 1989.

The attainment of population goals and objectives should rest on six main pillars:

- Strengthening political commitment;
- Development national strategies and programmes;
- Acceleration and expansion of resource mobilization;
- Strengthening the role and status of women;
- Strengthening the quality, effectiveness and outreach of family planning services in both the public and the private sector;
- Heightening community awareness and participation at all levels in formulation and implementation of programmes and projects based on priorities and needs expressed by women and men involved.

At the very least, national population goals and objectives for the coming decade and beyond should include;

- A reduction in the average number of children born per woman commensurate with achieving, as a minimum, the medium variant population projections of the United Nations;
- A major reduction in the proportion of women who are not currently using reliable methods of family planning, but who want to postpone, delay or limit childbearing;
- A substantial reduction in very early marriage and in teen-age pregnancy;
- An increase in contraceptive prevalence in developing countries so as to reach at least 56 per cent of women of reproductive age by the year 2000;
- A reduction of the 1980 rate of infant mortality to 50 per 1000 live births by the year 2000 in all countries and major sub-groups within countries;
- A reduction in maternal mortality from all causes, including illegal abortion, by at least 50 per cent by the year 2000, particularly in regions where this figure currently exceeds 100 per 100,000 births;
- An increase in the average life expectancy at birth to 62 years or more for men and women in high mortality countries by the end of the century;
- An increase in female literacy to at least 70 per cent and achieving universal enrolment of girls in primary school by the year 2000.

We call on all nations to make every effort to provide the financial resources necessary to reach the medium variant population projection by the year 2000, viz. a total of almost US$ 9 billion a year for core population activities.

serious problems in feeding their people unless they can slow population growth or find alternative sources of income. Haiti and six African countries – Rwanda, Somalia, Kenya, Burundi, Lesotho and Malawi – will be able to feed less than half their ultimate populations from their own lands, even using high levels of farm inputs (see chart 4).

Water

Food production requires water as well as land. Some parts of the world – often the very same ones already short of arable land – face a combination of population growth and rising water use per capita caused by the spread of industry, irrigation and piped household water.

Egypt, for example, already uses 97 per cent of its available water resources, although it uses only 40 cubic metres per person per year, one fiftieth of the United Kingdom's usage. Yet Egypt's population is projected to grow from 54 million today to 94 million in 2025 and a possible 132 million in 2100. Many other west Asian countries are likely to face severe shortages. Here and in other regions such as south Asia and east Africa, water shortage will not only place heavy constraints on the development of agriculture and industry, but may lead – in some cases already has led – to political conflict.

Livelihoods

The world produces enough food to feed everyone today – yet malnutrition affects as many as 500 million people. The problem is poverty, and the ability to earn a livelihood.

The total numbers of the poor have grown over the past two decades to around one billion now. South Asia houses the largest numbers, with around 350 million, followed by Africa, with 300 million – though this represents a far higher proportion of Africa's population. East Asia has around 150 million and Latin America about 100 million.

The growth of incomes may be affected by population growth. On a regional basis, there is a linear relationship between population growth and growth of per capita income. Income per person has risen fastest in East Asia, where population has grown most slowly. Income has grown least in Africa, where population has expanded fastest.

There is a lag of 15-20 years – the time it takes for babies to reach working age – between the peak of population growth and the peak growth in the labour force. Already there are severe problems in absorbing new entrants to the labour force in regions such as Africa or South Asia. Yet in numerical terms the highest rates of labour force growth in developing countries lie ahead, in the years 2010-2020.

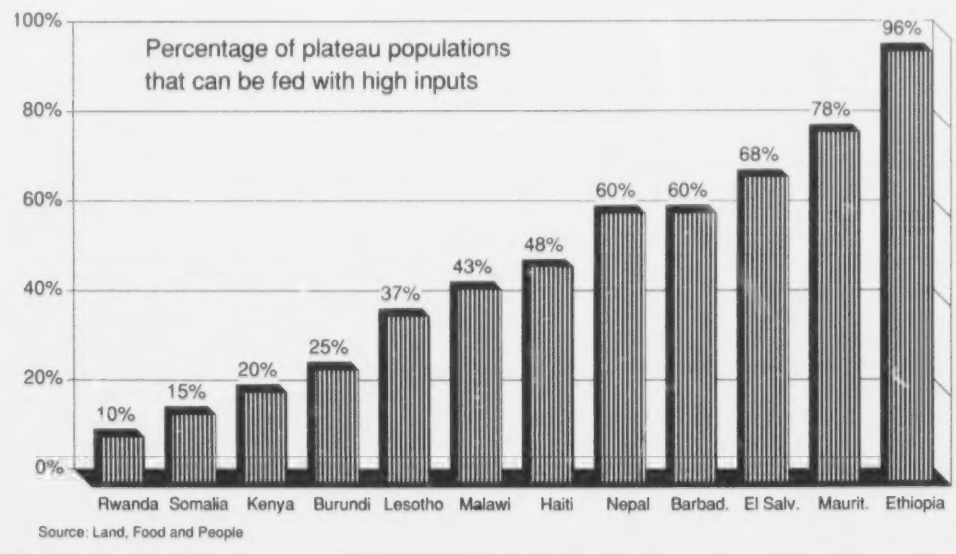
The labour force in developing countries will grow from around 1760 million today to more than 3100 million in 2025. Every year 38 million new jobs will be needed, without counting jobs required to wipe out existing underemployment, estimated at 40 per cent in many developing countries. Complicating the issue will be the spread of new, labour-saving technologies.

The land still provides the livelihood of almost 60 per cent of the populations of developing countries. But most of the best and most accessible land is already in use, and what is left is either less fertile, or harder to clear and work. The arable area in developing countries grew at only 0.26 per cent a year in the 1980s, less than half as fast as during the 1970s. *The area available per person actually declined at the rate of 1.9 per cent a year during the 1980s.*

If the trends of the 1980s continue, land per rural person in Asia will shrink from 0.22 ha. in

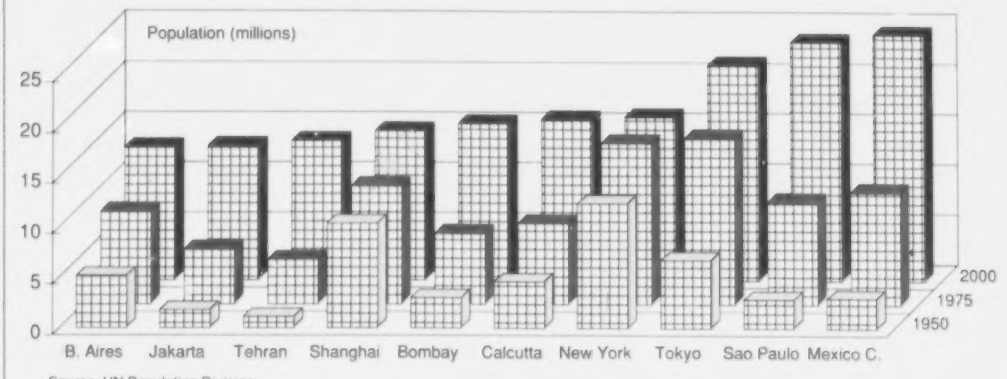
CHART 4

Critical countries



Source: Land, Food and People

CHART 5 Megacities 1950 – 2000



Source: UN Population Division

1985 to 0.2 ha. in the year 2025. In Africa the idea that land is abundant still persists, but arable land per rural person is currently only 0.4 ha. It will drop to 0.29 ha. per person by 2025, close to Asian levels – and it will be land of much lower average quality than in Asia. Only in Latin America, where the rural population will decline, will the area per rural person increase (see box 3).

Shelter

In recent decades urban growth in developing countries has been even more rapid than overall population growth. Town populations are expanding at 3.6 per cent a year – four and a half times faster than in industrialized countries, and 60 per cent faster than rural areas. Rural migrants swell the total, but an increasing share of this growth now comes from natural growth within the cities themselves.

The speed of growth has outpaced the ability of local and national government to provide adequate services. The number of urban households without safe water increased from 138 million in 1970 to 215 million in 1988. Over the same period households without adequate sanitation ballooned from 98 million to 340 million.

The construction of "permanent" dwelling units has also fallen behind population growth. For every 100 new households, only 38 permanent dwellings were built each year in 1985-89. In sub-Saharan Africa only eight permanent dwellings were built for every 100 new households. Of every 100 new households in developing countries 72 lived in shanties or slums – 92 out of every 100 in Africa.

The problem will get worse. During the 1970s towns had to house only 30 million extra people per year. In the 1990s they will have to cope with double that number. Although the urban growth rate will slow thereafter, annual additions will go on increasing right up to the year 2025, when they will be running at 90 million a year. The total urban population in developing countries will have mushroomed from a mere 285 millions in 1950, to 1384 millions now and 4050 millions in 2025. Chart 5 shows the growth in the largest cities expected by the end of this century.

BOX 3

Shrinking holdings

In many parts of the developing world, the majority of landholdings are already too small to provide a tolerable living for their owners. Data from 57 developing countries surveyed for the 1970 World Census of Agriculture show that 48 per cent of holdings were below 1 hectare, with another 19 per cent below 2 ha. In Indonesia 70 per cent were below 1 ha. In Sri Lanka 65 per cent of holdings were below 0.4 ha. The 1980 census has not yet been fully analyzed, but it will certainly show a deterioration.

In those countries that still have large land reserves, mainly in the humid tropics, new land for cultivation is usually won at the expense of forest. Where most of the suitable land has already been opened up, including most countries in Asia and East Africa, the mathematics of population growth and landholdings are uncomfortable.

In Rwanda, the average smallholder farmed a mere 1.2 ha. in 1984. With a total fertility rate of more than eight children per woman, half of them male, each son would receive on average around 0.3 ha., customarily at the time of marriage. The grandsons, at projected future fertility rates, would receive less than 0.1 ha. each, some time around the year 2040. Thus in the space of only sixty years the size of the average landholding would have dwindled by more than 90 per cent because of population growth.

In practice, many landholdings in Rwanda and similar countries are already too small to provide a living. Then they become "part-time farms", with the wife staying at home to tend crops and family, and the husband migrating in search of work. Or they are sold off and landholding becomes more unequal. In Latin America, East Africa and elsewhere inequality in landholding restricts smallholders' share of the total area. Land reform is generally agreed to be essential, but is often difficult to achieve. In practice, for the children of the poor, large families now mean small landholdings or landlessness tomorrow. With no prospect of rural employment, the landless migrate to the cities.

3. THE CATASTROPHE THRESHOLD

If the pattern of the past is repeated over the next two or three decades, the *proportion* of the human race in poverty will be reduced. The total *numbers* of the poor, illiterate, malnourished and homeless will continue to rise. The quality of the environment will continue to fall. Greenhouse gases will accumulate, and the atmosphere will become steadily warmer. That in itself is worrying enough.

But there is no guarantee that even this pattern of slow deterioration can be maintained. At some point in the not too distant future, the changes may cross a threshold into catastrophe.

It no longer seems likely that we will run out of minerals or sources of energy. Known reserves of most minerals have increased, not declined, with time and use. Exploration and new technology have opened up new sources. In the few cases where scarcity has become a factor, higher prices have encouraged development of cheaper substitutes, higher efficiency, and recycling.

The world also surmounted a food crisis in the 1970s when the Green Revolution boosted crop yields. As good farmland became scarcer, rising yields compensated in most areas.

But in the last decade of the millennium, the human race appears to be pushing against a new and more intractable set of constraints. These are set not so much by the availability of resources, but by the impact of their use on the environment.

Population growth and movement increase that impact.

The equation has three components. First, lifestyles, incomes and social organization determine levels of consumption. Second, the technologies in use determine the extent to which human activities damage, or sustain, the environment, and the amount of waste associated with any level of consumption. These two factors determine impact *per person*. The third factor, population, determines how many persons there are: it is the multiplier that fixes the *total* impact.

Inequality sometimes enters as a fourth factor, for example when most land is in large holdings and the poor are forced into artificially small or marginal areas. Poverty is involved when it prevents the adoption of more costly new technologies that could halt or slow environmental degradation.

Population is always part of the equation. *For any given type of technology, for any given level of consumption or waste, for any given level of poverty or inequality, the more people there are, the greater is the impact on the environment.*

Two areas of impact currently pose the greatest threat to human welfare and survival: degradation of the soils and forests of developing countries, and global warming. Population growth plays a key role in each.

The degradation threat

In most areas of the Third World the land degradation problem is severe. It has been estimated that six to seven million hectares of agricultural land are made unproductive each year because of erosion. Waterlogging, salinization and alkalinization damage another 1.5 million ha. In all, the FAO estimates, some 544 million ha. – 18 per cent of all cropland – could be lost completely if no conservation measures were taken, and the fertility of other areas would be reduced. Overall, unchecked soil erosion could cause a loss of 29 per cent in food production from rainfed cropland.

Drylands are particularly at risk. The United Nations Environment Programme reported that in the early 1980s a total of 1,501 million ha. of rangeland and cropland in developing countries were undergoing at least moderate desertification, affecting total populations of 253 million.

The tropics are more prone to soil erosion than temperate zones, because so much of the rainfall comes in torrential downpours and many soils are more easily erodible. Normally, a healthy cover of grasses or trees protects soils against the impact of rain and allows water to filter gradually into the soil. When this cover is thinned or removed, soil is exposed to the full blast of rain or wind, and washes or blows away, together with much of the moisture.

This thinning of vegetation is the *immediate* cause of most land degradation in developing countries. But the *underlying* causes are human. Population growth is a key agent. First, forests and woodlands are cleared for farming and fuelwood. Where there is no more new land and farmers cannot afford fertilizer, existing land is overused. This weakens vegetation and impoverishes the soil itself. So too does overgrazing of fallow lands and crop stubbles by livestock herds that have grown in tandem with human populations.

Of course inappropriate technologies and social structures play a role here, and poverty is often the reason why people are forced to use old methods of crop and cattle raising, when new technologies could increase yields without damaging the land. An attack on the roots of rural poverty and extension of new technologies to poor farmers are essential parts of any programme of sustainable development. *But at any given level of technology or poverty, population growth is a prime cause of land degradation in most of the developing world, and slowing population growth will help to brake further degradation.*

Deforestation

Deforestation is a major culprit in soil erosion. It is also the single most important cause of loss of wildlife species, and a key contributor to global warming. Once again, growing populations are largely responsible.

In the early 1980s, the FAO estimated that some 11.3 million ha. of tropical forest and woodland were being cleared each year – an area the size of Austria and Belgium put together. An additional 4.4 million ha. a year were being selectively logged to remove trees for sale, a practice which often damages a third or more of

the remaining trees. These figures do not include the more widespread degradation of fallow woodland and cutting of trees on farmland.

There is some debate over the causes of deforestation, as over other aspects of environmental damage. One interpretation emphasizes population growth, the other logging and ranching. As usual, reality is complex.

Commercial logging is important in tropical forest areas. It offers quick windfall profits, and an easy source of foreign exchange for governments in search of exports. It could be conducted sustainably, but most often the forest has been mined without replanting or restoring.

Ranching is important only in Latin America, where it may have been responsible for more than two-fifths of forest clearance between 1971 and 1986. It is a losing game. Unfertilized pasture on cleared rainforest declines in fertility every year, so more forest must be cleared to raise the same number of cattle, leading in some instances to murderous conflicts with neighbouring smallholders and rubber tappers.

But population growth is the cause of the majority of forest clearance outside of Amazonia. Much of the forest cleared in developing countries becomes cropland, to provide livelihoods for growing populations.

Between 1971 and 1986 the arable area expanded by 59 million ha., while the forest area declined by 125 million. These figures probably underestimate the encroachment of arable on forest land. Over the same period, built-on land for settlements, roads, industries and so on may have expanded by more than 50 million ha. to cope with the needs of growing populations (assuming an average need for non-agricultural land of 0.05 ha. per person). Since towns are usually located at the heart of prime agricultural areas, much of this expansion will have eaten up some of the best cropland, so the actual extension of arable land into new areas may total over 100 million ha. *When both agricultural and non-agricultural needs are taken into account, growing populations may be responsible for as much as 80 per cent of the loss of forest cover.*

Climate change

Loss of soil is a direct threat to food production and therefore to human life in developing countries: climate change is a threat to human life across the globe.

Since 1985, when the ozone hole above the Antarctic was discovered, climate has become a headline story. With world temperatures already 0.6°C warmer than a hundred years ago, some scientists have warned that global warming, due to the greenhouse effect, may have already begun. Middle of the range projections expect that by the middle of the next century average world temperatures will rise by 1.5° – 2.8°C. The world will then be hotter than at any time during the past 120,000 years. More worrying than the level of change is the pace: no previous climate shift in earth history has happened so swiftly.

The potential consequences are alarming.

Ecological zones will shift polewards, by 100-150 kilometres of more over the next forty years. This is faster than the 2 kilometres a year that many plant and tree species can move. Many species may be trapped in conditions to which they are not adapted, and will die out.

There may be drop of around one fifth in the area suited to forest cover, with a corresponding increase in grasslands and deserts. Forest fires may grow more frequent at higher temperatures.

As global warming proceeds, the sea level will rise due to melting ice and thermal expansion. Rises of 7 to 67 centimetres are predicted by the middle of the 21st century. A number of countries face severe difficulties if the higher projections come about. In *Bangladesh* a one metre sea level rise would displace 10 per cent of the population. By 2025 this would affect 23 million people. It would flood 2,000 km, one-eighth of the total area, with a total loss of output could of 13 per cent of the country's GNP. In *Egypt* a sea rise of only 50 cm would flood much of the Nile delta, some of the most productive farmland in the country, and home to 16 per cent of the national population. The plight of *the Maldives* is well known. Most of the 180,000 population of this Indian Ocean archipelago live less than 2 metres above sea level. Much of Oceania is similarly at risk.

The impact on food production is uncertain. Increased carbon dioxide concentrations could be beneficial: the gas is already in commercial use to boost production of crops grown under glass. There may also be an expansion northwards of the cultivable area. But the accompanying higher temperatures may damage some crops. There will be shifts in rainfall patterns. Several models predict that humid tropical areas, where excess rainfall is already a problem, could get wetter still, causing increased leaching, erosion, and crop diseases. Semi-arid regions like the Sahel and parts of India and Pakistan, where human existence is already precarious, might become drier.

Rainfall in mid-latitudes may decrease, hitting the world's chief source of surplus grain, the north American mid-West. The dangers to world food security are obvious.

Finally, it now looks very probable that there is a limit to the *total* amount of greenhouse gases that the human race can emit each year without endangering its own survival. That total, divided by the world population, will decide the level of *per capita* emissions that can be sustained.

Warming – the causes

So far the major responsibility for the production of "greenhouse gases" (see box 4) lies with the industrialized countries. They account for five sixths of world chlorofluorocarbon use, and three quarters of fossil fuel use. Developed world residents each add around 3.2 tonnes of carbon each year to the atmosphere, almost four times the amount added by their developing world counterparts. Thus, population growth in industrialized countries has a disproportionate impact.

But the parameters are changing. Emissions of greenhouse gases from developing countries have been growing:

- Annual carbon dioxide output from ***deforestation*** almost trebled between 1950 and 1980-85;
- emissions from ***industrial sources*** rose by almost sixteen times;
- ***energy consumption*** grew at 4 per cent per year over the years 1980-86 – ten times faster than in industrialized countries.

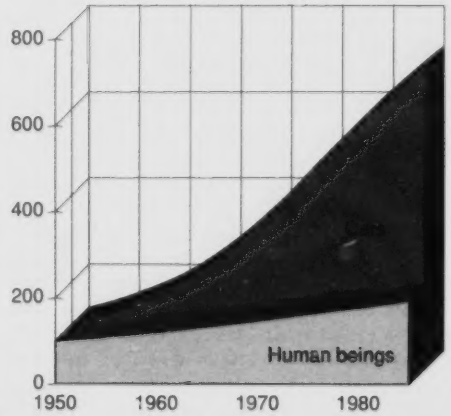
Over the past 35 years per capita carbon dioxide emissions from developing countries have grown at 2.4 per cent each year. As incomes grow, lifestyles and technologies will come to resemble those of Europe, north America or Japan, as they already do in more prosperous urban areas. There will be increases in car ownership. Since 1950 the human population has doubled – but the car population has increased by seven times (see chart 6). The world car fleet is projected to grow from its present 400 million to 700 million over the next twenty years – twice as fast as the human population. Much of that growth will occur in the developing countries, which currently own only 12 per cent of the world car fleet. South Korea alone puts 600,000 additional cars on its roads every year.

There will be an increase in *per capita* emissions from developing countries. The effect of population growth will translate this into an even greater rise in *total* emissions. If past trends continue, developing countries will be emitting 16.6 billion tonnes of carbon annually by 2025 – over four times as much as developed countries today. Assuming the industrialized countries manage to stabilize their emissions per person at current levels, the total output per year would be 21 billion tonnes – *three times the present level.*

The risks of global warming reaching catastrophic proportions would be high. We know from earth history that the world climate does not always change smoothly: sometimes, when certain thresholds are passed, feedback effects occur which accelerate change and bring on periods of unusual cold or warmth. Excessive global warming could cross such a threshold and trigger revolutionary changes which could threaten most or all of life on earth.

CHART 6 People and cars

Comparative population growth rates of human beings and cars (1950 = 100)



BOX 4

The "Greenhouse Gases"

FIVE gases are responsible for the bulk of global warming.

- ***Low level ozone***, produced in car exhausts, accounts for 8 per cent of the warming.
- ***Chlorofluorocarbons*** – also the main cause of ozone layer depletion – account for perhaps 20 per cent of warming. These are used in refrigeration and air conditioning, aerosols, packaging.
- ***Nitrous oxide*** is emitted by humus decomposing rapidly after forest clearance, and by the breakdown of nitrogen fertilizers.
- ***Methane*** accounts for perhaps 16 per cent of the warming effect. Two thirds of emissions are from man-made sources. Half of these come from decomposition in irrigated fields and the guts of livestock.
- ***Carbon dioxide*** is responsible for around half of global warming. Carbon is naturally recycled between atmosphere, ocean, rocks and the biosphere. What has upset the natural balance is the burning of fossil fuels and deforestation, releasing carbon normally locked up in today's forests and the mineralized remains of prehistoric plant life. (see chart 7)

Responses

Reduction of greenhouse gas emissions constitutes probably the greatest challenge ever posed to the international community. It will require action on all three elements of our equation: changes in *consumption levels* through increased efficiency and actual restrictions in some fields; changes in the *technologies* used; and efforts to slow *population growth* rates.

Technological substitutes exist for the chlorofluorocarbons. The 1987 Montreal Protocol agreed on a reduction of CFC emissions by Northern countries. But because developing countries at present use very little, allowance was made for them to *increase* their per capita use. This loophole would allow a 70 per cent increase in CFC emissions possible by 2040. The Chinese government alone has declared its ambition that there should be a refrigerator in every home by 2000. Most of those fridges are likely to be produced using old, CFC-reliant technology. Even in a field where technological solutions are available, levels of population growth will make an impact.

There are no technological solutions in sight for methane emissions from irrigated fields and livestock. They have both expanded in response to growing rural populations, and to meet expanding

world demands for cereals and meat. The irrigated area has grown by about 1.9 per cent a year since 1970, slightly faster than world population. Cattle numbers have grown only about half as fast, averaging 0.9 per cent a year. In 1987 there was one head of cattle for every four people in the world. Livestock and irrigation will both continue to expand in line with populations in developing countries. *Reducing population growth is the only viable strategy to reduce the growth in methane emissions from these sources.*

Carbon dioxide emissions will be hardest to bring under control. If the atmospheric concentration of carbon dioxide is to be stabilized, cuts of 50 to 80 per cent in emissions may be required by the middle of the next century. These will be difficult to achieve even with the most concentrated efforts. Four major lines of action will produce the greatest impact, especially if they are pursued in parallel.

The first is ***improved efficiency in energy use***. This can pay for itself in savings – but to encourage the investment needed, the price of fuels that produce carbon dioxide emissions may have to rise considerably. Some form of tax, geared to the carbon emissions of different fuels, will probably be necessary to encourage economy. The proceeds could be used to finance investment in the four strategies outlined here.

Second, ***a shift from fossil fuels,*** which currently account for 78 per cent of the world's energy use, to renewable sources such as wind, geothermal and solar thermal.

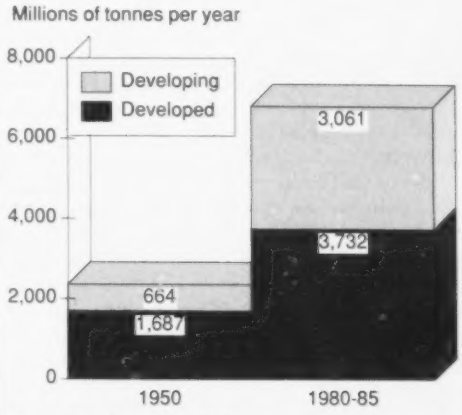
Third, ***halting deforestation*** could cut carbon emissions by 25 per cent. This will involve a change in forest land tenure – in relevant cases restoring ownership to the aboriginal peoples who made sustainable use of the forest – and a removal of all those incentives that encourage settlers to clear forest, or loggers and ranchers to exploit them without sustainable management. This strategy will give further impetus to calls for land reform, to provide alternatives to forest clearance to growing numbers of small farmers.

Fourth, ***a slowing in population growth***. This will help to reduce deforestation, of which it is a major cause.

And it will make a very considerable contribution of its own. Suppose emissions of carbon from developing countries can be kept as low as 1 tonne per capita per year by 2025. If the United Nations low population projection can be achieved, world population would be 1.64 billion lower than the high projection. *This would have as much impact on carbon dioxide emissions as reducing deforestation by 97 per cent.*

CHART 7

Carbon dioxide emissions 1950 – 85



Source: World Resources 1988-89

The low projection is 783 million people fewer than the medium – producing a reduction in carbon emissions equivalent to reducing deforestation by 46 per cent. If fossil fuel use in developing countries is higher – and it will be unless present trends are quickly and radically altered – then the potential contribution of lower population will be all the greater.

There is as yet no certainty about the degree or extent of global warming. Some people argue that until we have a lot more scientific data, it would be premature to undertake costly actions that may not be necessary.

The point about the four lines of strategy outlined above is that they are all desirable anyway, for reasons that have nothing to do with global warming.

Reduced use of fossil fuels will also reduce air pollution and acid rain. A shift to renewable resources must be made in the end. Oil has a limited lifetime, and coal, of which there are massive reserves, is a very dirty fuel. Reversing forest decline will protect soils and maintain biological diversity. And reduced population growth will make contributions to all the other three measures. It will also slow land degradation and make it easier to improve services like health and education.

PART TWO: KEEPING THE OPTIONS OPEN

REDUCING the rate of population growth will help extend the options for future generations: it will be easier to provide higher quality and universal education, health care, shelter and an adequate diet; to invest in employment and economic development; and to limit the overall level of environmental damage.

The differences will reach significant levels quite quickly: the growth rate in developing countries in 2000 under the United Nations "low" projection, for example, would be almost 0.5 per cent a year below the "high projection". By 2025 it would be less than half the high rate, over 0.8 per cent a year slower.

The difference in total numbers would at first be small, but would build up over time. If the low projection (7.6 billion) could be reached, it would mean 876 million fewer people by 2025 than the medium projection, and 1,833 million less than the high.

This is important for social services, housing, employment and the other development parameters. But the ultimate parameter is the environment, where the total numbers consuming or polluting are what count. A billion people less or more would make a significant difference, for example, to greenhouse gas emissions. For any given level of *per capita* emissions thirty-five years from now, the low projection would involve 11 per cent less total emissions than the medium, and 24 per cent less than the high projection.

If there is a limit to the total amount of greenhouse gases that the human race can safely emit each year, sustainable *per capita* emission levels will vary considerably depending on the size of world population. The difference in sustainable *per capita* levels between high and low projections in 2025 is 24 per cent. Slower population growth would provide a "time cushion" – a period in which to find cleaner technologies, or adjust to lower emission levels per capita.

It seems likely that for the oceans too, there may be limits to the total amount of pollutants that can safely be absorbed. If so, a further range of options will be affected by eventual population totals; for example the amounts of fertilizer and pesticide that can be spread on the land (and eventually reach the oceans) each year. Bigger populations will need more food and more fertilizer and pesticide – and will reach the total sustainable level more quickly. The safe limit will be reached more slowly if total populations are lower.

Similarly, the land required to provide housing, roads and so on for 7.6 billion people in 2025 would be 24 per cent less than for 9.42 billion. The land saved could be left for leisure or wilderness, to the benefit of wildlife and of future generations.

Lower future populations are not a goal in themselves, but a means to a far more important end: improving the lives of present and future generations. The lower the eventual population total, the more freedom of choice will be open to our children and grandchildren.

The higher the total, the fewer the options. And the longer it is before decisive action is taken, the more the options close up.

1. What has to be done?

How feasible are the lower population projections?

The *medium* projection represents what appears at present to be the most probable outcome. But even this requires sustained progress, with the increase in effort which that implies. It involves cutting the total fertility rate in developing countries from an average of 4.2 children per woman in 1980-85 to 3.2 by 2000-2005 and 2.3 by 2020-25.

For the *low* projection the fertility rate would have to drop faster, to 2.7 by 2000-2005 and 1.9 by 2020-25, a decline of 2.2 children per woman over a period of thirty-five years. Such a target seems ambitious, but many developing countries have achieved this sort of decline. The best performers such as Cuba, China or the Republic of Korea have achieved as much in less than half that time.

What needs to be done?

The answer is surprising, and heartening. *Immediate action to widen options and improve the quality of life, especially for women, will do much to secure population goals. It will also widen the options and improve the quality of life of future generations.*

2. Extending women's options – from fate to free choice

Life in traditional societies is governed by necessity. There is little room for individual decision.

Women's horizons in particular are narrowed by the daily need for food, fuel and water, by work at home and in the fields. Pregnancy and childbirth are part of a cycle ordained by custom and hallowed by time.

Traditional life is changing fast. The most valuable aspects of development increase individual ability to respond to new challenges, widening the range of effective individual choice. Advances in women's status and rights, and especially education, give them wider choices and horizons. Better access to health care and family planning brings family health under greater personal control.

Women's status

Options in the use of time are far more restricted for women than for men. Studies from almost all

types of society show women working a "double day": in the home and outside it. In developing countries ""housework" is widely defined to include a number of burdensome chores usually linked with food preparation. Three tasks dominate a woman's day: gathering fuel, fetching water and the preparation of staple foods. Each of these can take an hour or more. As fuel and water become harder to find, the load grows heavier.

It has been suggested that women's labour burden – heaviest of all in Africa, where women do more than 70 per cent of the food production as well – may encourage women to have more children to help lighten the load. Certainly it pushes families to withdraw girls from school prematurely so they can help at home. The mother's burden becomes the daughter's sacrifice – a sacrifice much less frequently demanded of boys.

No fundamental change in favour of women is possible without a massive change in male attitudes. This is more than a philosophical point: men control the legal, administrative and financial systems which effectively deny a vast number of women the right to own land, inherit property, establish credit, enter the professions or rise in business.

On the most basic level, various simple improvements can speed women's routine tasks: effective hand mills save time preparing food; wells and standpipes bring clean water closer to home; cheap and efficient woodstoves and fuelwood trees close to home and fields will both lighten women's load and protect the environment. But even these small advances require the consent of the local leaders who set development priorities: here too it will be necessary to co-opt men before improving the rights and status of women moves to the top of the list.

Education – widening the horizons

Often education is the means to a new vision of options. It encourages a sense of control over personal destiny and the possibility of choices beyond accepted tradition. For women it offers a view of sources of status beyond childbearing. Because of this, education – especially for girls – has a strong impact on the health of the family, and on its chosen size.

Women assume the burden of child care along with their other tasks. They are in charge of nutrition, hygiene, food and water. As a result the effect of women's education on child survival is very marked. In Kenya, for example, mothers with no education lose 109 children under five for every 1000 born. Women who have completed their primary schooling lose only 72, while those with a secondary education lose 64. In Indonesia the education effect is even more marked: children of mothers with no schooling are more than three times more likely to die before their fifth birthday than children of mothers with a secondary education.

Education's impact on fertility and use of family planning is equally strong. Women with seven years of education tend to marry an average of almost four years later than those who have had none. The level of contraceptive use among these educated women is very much higher – two and a half times on average, almost four times higher in Africa.

The first three years of education do not make much difference – indeed, in Africa, women with one to three years' schooling have slightly *higher* fertility than those who never attended school. But four to six years' education lowers fertility by between 5 per cent in Asia and Africa and 15 per cent in Latin America, as compared to absence of schooling. The greatest effect occurs when women have seven years or more of education. These women have, on average, 2.2 less children each than those who have had no education at all. The husband's education makes much less difference – families where the husband has had seven years in school have only 1.3 children fewer than those where he has had no schooling.

Yet there remains a great deal to be done in female education, even to bring it level with male. Women make up almost two thirds of the illiterate adults in developing countries. In 1985, only 51 per cent of women could read, against 72 per cent of men.

BOX 5

Raising the age of marriage

THE average age at marriage is a useful measure of the range of options open to women. A lower average age means fewer options: the woman is locked in early to the cycle of repeated childbearing. Where they have the option, many women delay marriage in favour of a job or further education.

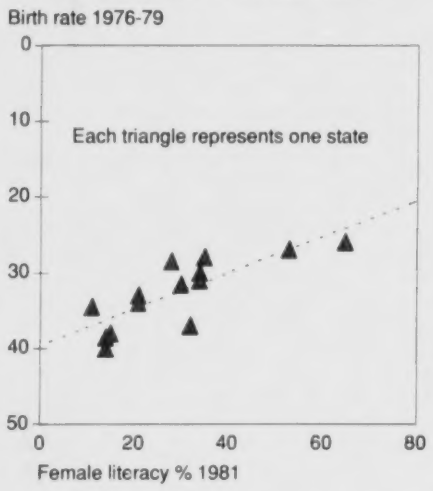
There is a very clear relationship between a woman's age at marriage and her fertility. Women who marry at 20 or older have an average of 5.3 children each, 1.8 less than those who marry before 20, almost entirely the simple result of delaying first childbirth. The connection shows clearly at regional level, too. Age at marriage is lowest in the two regions with highest fertility, Africa (average 19.5 years) and South Asia (19.3 years). In East Asia, with lowest fertility, the average woman marries when she is 24.2 years old, and in South East Asia, next lowest in fertility, at 22.6 years.

Raising the legal age of marriage is only the first step. In practice there is no necessary relationship between the law and the fact. The legal minimum age is often ignored and a high proportion of marriages are not registered. Five Latin American countries allow girls to marry as young as 12, and another nine at 14 years. Only four African countries allow marriage before 15. Yet the average age of actual marriage is much younger in Africa (18.5) than in Latin America (20.5) and fertility is much higher in Africa than in Latin America.

The legal minimum age affects the actual age of women at marriage less than their options for secondary or further education, and employment. It is only by working to extend these options that the average age at marriage can be raised.

CHART 8

Female literacy and birth rate in India



In 1986 the enrolment of girls in secondary education – the level that really has an impact on fertility – was highest in Latin America, yet even there it was only 53 per cent. In the Arab states the rate was 39 per cent, in Asia 33 per cent, and in Africa a mere 21 per cent. Even at primary level, female enrolment is lower than male. At secondary level the differentials widen – in Africa the female secondary enrolment rate is only 55 per cent of the male. It is 70 per cent in Asia and the Arab countries. In Latin America the roles are reversed, and more girls are enrolled than boys.

Primary education for all by the end of the decade is a worthwhile target and a necessary first step. But there should also be efforts to improve the enrolment of girls, especially at secondary level where the pressures on girls to drop out become much stronger than for boys, as they are married off, kept at home to help with housework, or become pregnant.

Double-shift schooling – taking half the school's pupils in an extended morning, and half in a longer afternoon – might help keep girls in school by leaving half the day free in which she can help her mother. More single sex schools and female teachers may be necessary in areas where girls are segregated from males. Population education, and family planning services in areas where teenage pregnancy is already a problem, may also help to reduce female dropout rates.

The importance of literacy programmes for adult women goes far beyond reading and writing: literacy is essential for the assertion of legal rights. It also allows access to practical information on such matters as preventive health care and family planning, which are often part of the programmes themselves.

The association of female literacy with lower fertility is very striking: in India, the states with the highest female literacy are also those with lowest fertility. States with the lowest female literacy have the highest fertility rates (see chart 8).

Improving health

Sustained improvements in health care give people a sense of control over their lives. With adequate health care, parents develop the sense that they have some choice over their children's survival. Parents' feeling of control over their lives is extended by modern family planning; they can protect the health of both mother and child by preventing or postponing childbirth. Preventive

BOX 6

Mexico – Catalyzing rapid change

As recently as 1970-75 Mexico's population was growing faster than today's African average, at 3.2 per cent a year. Total fertility was at the high level of 6.75 children per woman, almost as high as modern Africa's. It hardly budged between 1950 and 1970.

Then, quite suddenly in the mid and late seventies, things began to change dramatically. The total fertility rate dropped to 4.89 children per woman in 1975-80, then again to 4.2 in 1980-85. Over the ten years from 1970-75 the birth rate fell from 43 to 32 per 1,000. Population growth plunged to its current rate of below 2 per cent.

A steep rise in Government commitment, availability of family planning and public attention to the topic brought about this sudden shift.

The Mexican Government began serious intervention in population in the early 1970s. In 1973 the National Population Council (CONAPO) was established, with the job of coordinating population policies with all government ministries. The following year an amendment to the constitution was passed which guaranteed women equality before the law and the right to decide how many children they wanted.

In 1977 the Rural Health Programme was launched. It used local women, nominated by their own communities, to distribute contraceptives in 13,000 villages. That same year a social marketing programme, PROFAM, began, selling contraceptives through commercial outlets at a subsidized price.

Improved access to family planning through public and private channels had a dramatic impact on contraceptive use. In 1974 only 12 per cent of women were using modern methods. The proportion doubled by 1976, and almost doubled again to 42 per cent in 1982. This rise in contraceptive use was almost entirely responsible for the drop in fertility.

Until the early 1970s, traditional attitudes to family matters had persisted side by side with modernization. The unequal pace of development had left large sectors of the population behind.

Yet over the years the essential groundwork of progress in education and women's advancement had been laid. By 1975 adult literacy was 76 per cent. Female primary enrolment was over 100 per cent and level with male. Infant mortality was down to 60 per 1000. The social setting was in place and success awaited only a catalyst – easy access to family planning.

measures that the family itself can apply assist the process.

When women want to plan their pregnancies, but cannot find affordable, effective services, the result may be higher rates of abortion, or reliance on whatever family planning methods are available, even though they may be inappropriate. Birth rates will fall, but the health of mothers and children will suffer too.

3. Family planning: the choice factor

The option of controlling family size always exists. Traditional methods such as abstinence or withdrawal are universally known, and are still widely practised. But practices which favoured later marriage, child spacing and an upper age limit to parenthood have often been lost along with the complex structure of traditional society and economy.

Wide availability of more effective and more convenient modern methods speeds their use, as in China, Mexico (see box 6), the Republic of Korea or Thailand. Where other conditions – women's education, health and status – were right, the speed of adoption and of fertility decline has been astonishing.

UNFPA recently conducted a review of 20 years of experience to spotlight "success factors" in family planning programmes. Wider options are crucial here too, first in the sense of access to services, so choice can be exercised whether to use them or not. But providing a range of methods is also important, so that the couple can choose which one suits them best.

The design of programmes makes an enormous difference to success rates. This is most dramatically illustrated by local and pilot programmes that have achieved excellent results in countries with disappointing overall performance. In Bangladesh, for example, the Matlab project, using village women to supply pills in home visits, achieved a contraceptive prevalence rate of 45 per cent, more than double

BOX 7

Kenya – commitment pays off at last

KENYA was the first African country, back in 1967, to start a national family planning programme. At that time her population growth rate was about the same as Mexico's. A decade and a half later, Kenya had the highest rate of population growth in the world, around 4.2 per cent a year, while Mexico's had fallen to 2.3. Kenya's birth rate was higher than in 1960-65. The average number of children each woman had was over eight, second highest in the world.

All this despite advances in education and child survival. Infant mortality dropped from 118 in 1960-65 to 73 in 1987. Primary school enrolment rose from 54 per cent in 1965 to 94 per cent in 1986. The proportion of Kenyans living in towns grew from 7 per cent in 1960 to around 24 per cent today.

Why did these changes not translate into lower birth rates?

The ***cultural value placed on high fertility*** in Africa certainly played a part, but it may have been exaggerated: experience elsewhere shows that values can change rapidly under the right circumstances.

Political support was negligible until Daniel Arap Moi assumed the presidency in 1979.

The ***legal framework*** was unhelpful. There is no minimum age of marriage. In the courts, the dice are loaded against women who wish to assert their legal rights;

Despite Kenya's early start, there were ***severe shortcomings in family planning services.*** Delivery was based in clinics which were not readily accessible. As late as 1982, only 42 per cent of rural health clinics offered family planning services. Of these only two-thirds had a full time service, the rest being periodic. Supplies were often intermittent. Even in 1984, 42 per cent of women did not know where they could get hold of family planning supplies. Service was poor, with long waits and little privacy to discuss needs. Overworked clinic staff placed higher priority on curative health care. Management was weak. Mismanagement of funds was common, supervision lax, training inadequate. Key groups were excluded from services. They included adolescents, unmarried women, and men.

Ten years of policy backing for family planning has now translated into action and unexpected progress. Since 1982, the National Council for Population and Development, based in the Office of the Vice-President, has spearheaded policy formulation and the coordination of all population-related activities including aid. In 1984 a national leaders' conference was held to mobilize opinion, and Parliament enacted a set of population policy guidelines. In 1987 a National Population Strategy was adopted.

Service delivery has expanded vastly to include a nationwide array of community distributors, plus social marketing of contraceptives through commercial outlets. By 1989, nine out of ten women said they knew where to find family planning services: four out of five said they were within 60 minutes journey of such a source.

These improvements have begun to show results far ahead of expectations. A 1989 survey found that the proportion of women using any method of contraception had risen to 27 per cent, from 17 per cent only five years earlier. Two-thirds of these were using a modern method. The fertility rate had dropped from 7.7 to 6.7 over the same period, a level not expected before 1995 even on the United Nations low projection.

And there was good reason to expect further improvement if services could be extended and improved. Half of all women with four living children wanted no more. The mean ideal number of children was only 4.4. For 15 to 19 year olds it was only 3.7.

Source: Kenya Demographic and Health Survey 1989.

the national rate. The Chogoria Hospital Programme in the rural Meru district of Kenya used a network of village-built health clinics, trained birth attendants and volunteer family health workers, and reached a rate of contraceptive use of 48 per cent in 1985 – three times the level for the country as a whole.

Political support

Political support from the highest levels in the state is essential in making family planning both widely available and widely used. Political backing helps to legitimize family planning, to desensitize it and place it in the forum of public debate. It helps win over traditional leaders or counter their hostility. And it helps to ensure that funding and staffing for family planning are stable and protected against damaging budget cuts or the competing demands of rival departments. A survey of the connection between political support and the strength of family planning programmes shows that programmes are strongest where there are official policies of fertility reduction, or where leaders have made strong statements of support, as in Indonesia, Mexico, the Republic of Korea and Zimbabwe (see box 7).

Of course political support from national leaders cannot be taken for granted. In some parts of the world, leaders themselves may need convincing that family planning is a practical necessity, not a political liability. In such cases research on population trends and their implications for resources, environment, housing, and other government services has often helped to sway them. The United Nations-backed African

BOX 8

A checklist for national population policies and strategies

A SUCCESSFUL integrated approach to national population planning includes the following elements:

● A population strategy coordinated with policy in other development sectors

A National Population Council is often set up for this purpose. Its brief should be to set overall population goals and oversees their implementation, and should include coordinating policy in all development areas that affect population, including donor programmes. It should examine, for example, constitutional and legal codes and practice for their effect on women's status, sectoral development programmes for their impact on population, fiscal and tax policies which might influence family size.

Donors vary in their priorities, reporting requirements, training and supply systems, and favour different service and IEC approaches. These should as far as possible be standardized under the direction of the council, which should also ensure that donor programmes in other sectors do not conflict with national population goals.

The council should have an appropriate status within the machinery of government, and political backing from the senior leadership. Without these safeguards, the council quickly becomes at best an advisory body or public relations figurehead.

● Population planning integrated with development planning

A permanent Population Planning Unit within the Ministry of Planning encourages the use of population data in planning other sectors, and influences patterns of investment in sectors which contribute to population goals – health, education and employment, for example. It also plans for the population sector itself, and sets targets in consultation with line ministries.

● Targets for motivation and planning

Fewer than a third of recent national development plans included specific goals or targets for demographic matters. Less than one in six had quantitative goals for fertility or population growth rates. Yet overall goals help in budgeting, and in planning provision of other items such as schooling or housing. They can be an educational tool for citizens and even for governments.

Once strategic goals are agreed by the national population council – for distribution and migration, fertility levels, maternal and infant mortality or life expectancy, for example – the unit works with line ministries to set targets, for example for contraceptive prevalence or service outreach. Targets provide a standard against which achievements can be measured. They should be realistic, and if they are not attained, evaluation and research should follow up to discover why.

● Programme research

Programme research should help both to establish national strategic goals and specific targets and to monitor progress; for example on the interactions of fertility with mortality, women's education, migration, or the effects of population growth on food, cities, or the environment. Research should aim to establish a knowledge base of cultural practices and sensitivities as well as purely factual information. Researchers should be trained to evaluate programme impact in the light of this knowledge.

● A set of practical priorities

Many governments – including some of the most successful – have begun efforts in more limited areas, and the success achieved here has led on to wider efforts. Sometimes policy formulation has led service provision – as in Mexico or Kenya. Elsewhere services have reached a high standard before policies were explicitly formulated – as in Zimbabwe or Thailand. In other countries, strong information, education and communication programmes have enlisted support for population goals and created demand for family planning services even in advance of service provision.

Census Programme in the 1970s, UNFPA's first venture into funding programmes in Africa, demonstrated to many governments for the first time the true dimensions of their population situation. Support for population programmes in Africa has been growing ever since.

Community support

Support must extend far beyond the national leadership before programmes take off.

It may be necessary to involve a wide range of religious and traditional leaders in discussions before introducing population policies and programmes on a wide scale. If these leaders feel that they have been sidestepped, their opposition may become entrenched. If they are consulted and involved, on the other hand, they may often turn into allies. In Indonesia, for example, Muslim religious leaders were consulted at national and local levels, and not only withdrew their opposition, but have added their voices to the government's call for family planning.

Community involvement at local level is also essential. If a national programme moves in without consultations with local community leaders, it may be perceived as alien and achieve no results. Community groups, NGOs, and women's groups can become involved in programmes as educators and distributors. Programmes start with an advantage when a trusted local institution becomes involved in family planning.

Communities are also one of the best sources of feedback and evaluation. They can help to check whether messages and methods available correspond to needs and are culturally acceptable, and can report on waiting times and staff attitudes.

4. Family planning – improving access, quality, technology

Meeting unmet demand

The goal of the Amsterdam Forum is to maintain the curve of population growth along the "medium projection" – 6.25 billion in 2000, 8.5 billion in 2025 and a final stable total of 10.2 billion. Achieving it means among other things an increase in family planning users in developing countries, from 326 million couples today (45 per cent) to 535 million (56 per cent) by the end of the century.

This is by no means impossible, providing all countries are willing to make the necessary commitment. An essential step will be to increase the coverage of family planning services.

This can be approached from two directions. One is to meet *existing demand*, that is to make sure that everyone who at present wants effective contraception can get it easily. The other is to work to *increase the level of demand*, not only by information, communication and education about population and family planning, but also by changing those factors that most closely affect decisions about family size: education, health and women's position in society. Better, more easily available services also play a part in increasing demand.

There is good evidence for a considerable level of existing unmet demand. Many women in developing countries have more children than they want: in 23 out of 38 countries in the World Fertility Survey, more than a quarter of women had larger families than they would have desired, and up to half of the women aged 40 to 49 did not want their last birth. The proportion of unwanted births is 10 to 20 per cent overall.

In Africa, for example, 77 per cent of married women who want no more children are not using contraception. The proportion in Asia is 57 per cent. Only in Latin America does it fall below half, at 43 per cent. If anything, these figures probably underestimate unmet need for family planning services. They do not include unmarried women who need to avoid pregnancy, or married couples who would like to delay their next birth. Nor do they include married couples using unreliable or inconvenient traditional methods.

If these people could be reached, contraceptive prevalence could be increased immediately by perhaps 6 per cent of all married couples in Africa, 15 per cent in Asia and 18 per cent in Latin America. This would be a substantial contribution to the overall target of 56 per cent, but it would not reach up to three-quarters of couples in parts of Africa and south Asia.

Barriers to access

The principal reason for so much unmet need can be summed up in three words: lack of access. People cannot choose contraception if it is not available.

Four main barriers block the way to easy access.

The most obvious is *geographical*: how long does someone have to travel to reach a point where they can get hold of supplies, and how long do they have to wait for service when they get there? Time is more crucial here than distance. Seven or eight kilometres may be negligible when roads and transport services are good. In mountainous terrain, with only footpaths, that distance might take half a day or more. When long journeys may be necessary, people may be unwilling or unable to give up a day or half a day from the more pressing demands of farm and household labour. One study in the Philippines showed that contraceptive use among people living eight kilometres or more from a clinic was over 60 per cent lower than when they lived within one kilometre.

The second barrier is *financial*. While many surveys show that people are willing to pay moderate amounts for family planning supplies, most poor people have a fairly low price threshold. Costs of more than one per cent of income are likely to prove a deterrent. Finance is also related to distance: often the heaviest cost may be the journey to the clinic rather than payment for the service.

Third are the barriers of *culture and communication*: opposition from the peer group, husband or mother-in-law; shyness about discussing contraception or undergoing

gynaecological examination; language difficulties or unsympathetic clinic staff. For many women and men, especially in rural areas, a decision to use modern family planning is a step into an unfamiliar world of white coats and strange instruments, of forms, questions and tests. Unless they have sympathy and support from family, friends and service staff, the step may never be taken.

A fourth barrier can be raised by the *methods available*. There is no such thing as the perfect contraceptive, but most people who need one can find a method suited to their needs – if it is available. The best services provide a "cafeteria" of methods, from which the user can select. When only one or two methods are offered, many potential users are excluded.

Often all four barriers combine to build a high wall excluding most poor rural people, especially when services are limited to urban or scattered rural clinics, and only highly trained health personnel are authorized to provide services.

Overall, 60 per cent of the population of developing countries have ready and easy access to at least one modern method of contraception – that is, they can get hold of supplies without spending more than two hours per month, or more than 1 per cent of their wages. But the proportion varies widely between regions. Some 95 per cent of people in East Asia have this level of access, 57 per cent in South East Asia and Latin America, and 54 per cent in South Asia. But in the Muslim world the proportion falls off to 13-25 per cent, and in sub-Saharan Africa to a mere 9 per cent. Not surprisingly, the rank order for use of contraception is exactly the same.

If high contraception use is to be achieved, suitable services must be not only available but accessible to all who need them.

Quality means quantity

Suitable services mean high-quality services. In the long run the quantity of continuing users will depend on the quality of the service.

Service providers do not need to be highly educated, but they should be sympathetic, well-informed and committed to their work. The service must be *reliable*, so that users can count on supplies when they need them. A couple's commitment to plan their family may be undermined if pills or condoms are not available. There should be a good system of *referral* to clinics or hospitals for doubtful cases, or cases where the methods require a physician's involvement. There should be a good system of *follow-up*, both for temporary methods and sterilizations. Dealing promptly with side-effects and difficulties, real or imagined, will ensure continuation for temporary methods, and greater confidence in all methods – remembering that potential users will form many of their impressions from discussing good and bad experiences with current and former users.

Good counselling is one of the most important aspects of quality. Family planning is loaded with emotional, social and sometimes religious values. It is vulnerable to poor information, rumour and outright superstition. In a single Brazilian village, for example, different women believed that the pill would make their hair fall out; that it would make them go mad; that it would cause cancer; or that it would accumulate in the womb into a malignant bolus that could only be removed by surgery. In one eight-country survey up to 54 per cent of women avoided the pill and up to 60 per cent of users discontinued it because of safety worries. The idea that the IUD can migrate from the uterus to the brain is found in anecdotes from three continents.

Counsellors – whether they are doctors, nurses, midwives, housewives or pharmacists – must be well trained to advise on the range of methods available and their potential side-effects. They must be able to match methods with users – for example the IUD is better for older women who have had several pregnancies, the pill for younger women providing they do not smoke and have no history of high blood pressure, and so on. They should be able to give clear and simple instructions and follow up to ensure their instructions are being followed.

Counsellors should learn to listen as well as to lecture: to accommodate each client's needs and preferences, and to take seriously complaints about side-effects. They should be prepared to help with a change of method rather than insisting on a method which is not satisfactory.

Along with reliable supplies and a good system for referral in problem cases, good counselling can make a big difference to continuation rates. In Jakarta, Indonesia, nine out of ten women who were counselled before and after IUD insertion were still users after one year, and eight out of ten after two years. Another group of women were counselled only if they complained of problems after insertion; only half were still using the IUD after one year, and less than a third after two years.

Good counselling is also essential to ensure effective use, which is crucial if modern methods are to have their full impact.

Reaching the client

One test of the quality of services is how well they are adapted to the clients' needs. Clinical services must be encouraged to examine their practice to check for hidden barriers. Are their hours suited to people's needs, or do they conflict, for example, with market hours? Can waiting times be cut? In one survey of six Latin American clinics women spent an average of 65 minutes on the premises, but only five minutes were with the doctor or nurse. Are staff treating all clients with consideration and politeness – or are they brusque and bureaucratic, especially with people of lower status? In Nigeria's Imo State people were asked why they did not use government health facilities. Harsh, rude and uncaring attitudes were cited as major reasons for keeping away.

But access also means moving beyond exclusive reliance on clinics, hospitals and health centres for service delivery. Health visitors can reach women at home and when they may be most

receptive, after they have just given birth. Workplace services allow employees to use them without taking time off work. Services delivered through private physicians (including traditional practitioners) can often reach a wider clientele than clinics.

Often the most practical channel for family planning is the primary health care network reaching down to village level. Over the past decade dozens of countries have introduced such networks, designed to carry health care beyond the urban centres which absorb such a large share of health care spending. The basic model involves public health nurses and specially-trained midwives, under the supervision of medical officers of health, and backed up by unpaid or modestly paid village health workers and traditional birth attendants, who are given basic training and equipment to deal with the most common health needs. These workers are part of the official health structure and are often backed up by village health committees. There is a strong emphasis on prevention and self-reliance, but curative services are available as needed; patients are referred to clinics or hospital as required.

Integration of family planning into primary health care makes sense for two major reasons.

The first is managerial: it is simpler and cheaper to use a single structure of personnel, supervision, referral and supplies, than to create a separate one specifically for family planning.

BOX 9

Using the community in Bali

EVERY Balinese month of 35 days, all the male heads of families of Tampaksirin village meet in the *banjar* or community association to discuss community affairs. What communal labour is needed around the village? Who needs help towards financing a funeral? Who has violated traditional laws?

Family planning is a regular topic. The *kelian* or elected headman asks each man present to report what family planning method is in use, or if his wife is pregnant. A detailed map of the village on the wall of the meeting hall records by colour code the family planning status and method of every household. And at the end of the meeting the *kelian* will distribute family planning supplies.

Bali is one of the most striking examples of community participation anywhere in the world. The *banjar* has become the main channel of motivation and supply for family planning. Because it was an institution that already commanded wide respect and loyalty, its involvement is perhaps the chief reason explaining the extraordinary success of family planning in Bali. Contraceptive use on the island has risen from negligible levels in 1970, to 69 per cent in 1987. The total fertility rate has plummeted from 5.8 in 1965-70 to only 2.5 in 1987.

Source: National Contraceptive Prevalence Survey 1987.

The second concerns public perceptions: PHC integration helps win acceptance of family planning as a contribution to better mother and child health. Involvement of trained birth attendants – perhaps retrained traditional birth attendants who are trusted in the community – can do a great deal to make family planning part of daily life and bring services to couples when they need them.

Two other channels are useful in broadening the base and increasing the appeal of family planning; community based distribution, and social marketing.

Reaching the community

Community-based distribution (CBD) programmes use members of the community – housewives, leaders or members of local groups – to distribute contraceptives. Their training is brief – a few days to a month. Their pay is modest. In many cases they may not be paid at all or they may be paid in kind by their clients, or keep a proportion of the price of the goods they supply. In some programmes they also deliver services such as oral rehydration supplies, malaria or parasite treatment, or immunization.

Some key points make for success in CBD programmes. Selection of distributors is crucial. Ideally they should be trusted members of the community they serve and of the same sex as their clients. Older married mothers who are themselves contraceptive users have proved the best candidates.

Where services go to men, the distributors may have to be men. In one North African programme women distributors who gave condoms to men encountered hostility. In Oyo State, Nigeria, male distributors had to be recruited to talk to men, while women dealt with women, as there was little communication between the sexes on this delicate topic.

Maturity, tact, perseverance and enthusiasm are essential requirements for the good distributor. Literacy is not an absolute essential, though the use of illiterates means adaptations in training and in methods for keeping records. In Sudan illiterate midwives have been used successfully to distribute not only oral pills, but oral rehydration supplies.

Good training in counselling and good supervision are essential. Supervisors must check that workers are distributing and keeping records properly, but they also help them overcome difficulties and improve their work. They also ensure the necessary flow of supplies.

CBD programmes spread rapidly during the 1970s. Before 1970 there was only one CBD programme, in the Comilla area of Bangladesh. To date there have been at least 70 programmes in 40 countries.

Using the market place

After many years of relying only on clinic and health workers to deliver services, family planning programmes are discovering the uses of the market place. The private sector provides

contraceptives to more than half the users in many developing countries. Private doctors are the chief source of contraception in South Korea. Pharmacists are the main source in a number of countries such as Jamaica and Brazil.

Pharmacists generally are on the same social level as their customers, and talk to them in plain language about their needs. Waiting time is minimal, and in urban areas the pharmacy is likely to be closer than the clinic. If pharmacists are trained to provide reliable information on methods and side-effects, they can often provide a useful backup to the regular health services. Co-operative outlets, roadside stores and market stalls are also important suppliers in some areas. All suppliers are encouraged to direct first-time users and people with special problems to the nearest clinic for advice.

Social marketing programmes reduce the cost to the user and increase sales by subsidizing supplies. These two aspects – the integration of suppliers with regular health services through training, and subsidized supplies – are felt to combine the ease of access of the market with the sense of social responsibility of service programmes.

The first and still one of the largest social marketing projects was the Nirodh condom programme, launched in India in 1967. Today, more than 25 countries use social marketing, with all types of outlet from street hawkers to newsvendors, barbers and vending machines. The wider the range of outlets, the better the results.

Some projects have remained on a small scale, reaching perhaps only 0.5 to 2 per cent of couples. But some have had a very wide impact. The massive Bangladesh programme, for example, distributed over 2 million cycles of pills and almost 120 million condoms in 1984, providing the equivalent of a year's contraception for 1.3 million couples – 7 per cent of all couples, and more than 40 per cent of couples using contraceptives. Egypt's programme reached 7 per cent of fertile women and 30 per cent of contraceptive users, while Colombia's covered 15 and 31 per cent. Good market research is important to determine product acceptability and choose popular brand names and package design. Persuasive advertising, sensitive to cultural factors, is needed, and correct pricing: not so high as to deter, not so low as to make users believe the product is inferior.

In its limited niche – supplementing the work of government health services in the provision of non-clinical methods of family planning – social marketing may be cost-effective because the distribution network is already in place and users pay a proportion of the costs. The cost per year of protection for a couple ranges from zero to $6 in well established projects, comparable with other forms of temporary contraception.

The potential of community-based distribution and social marketing has not been exploited in most countries. Out of 93 countries studied for one survey, only 37 had a CBD or social marketing project. Only 11 had both, and 53 countries, or 60 per cent of the total, had neither. The programmes were most common in Latin America (67 per cent), through 57 per cent in Asia, to 31 per cent in the Middle East and North Africa and only 15 per cent in Africa. There is clearly a considerable potential for expansion as an essential complement to integrated health services.

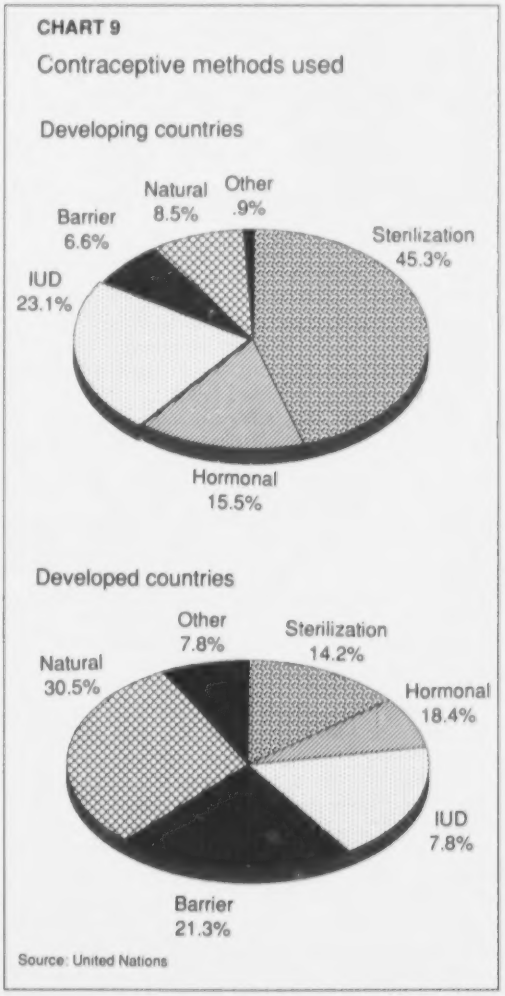
Technology – assuring choice

The technology of contraception is usually thought of in terms of safety and reliability. *But it should also be seen as another important aspect of improving access and choice in family planning programmes.*

Currently the most popular method, worldwide, is sterilization, with around 119 million women and 45 million men in 1987. Next in popularity was the inter-uterine device (IUD) with 84 million users, followed by the pill, with 67 million. The pattern of use differs considerably from one country to another, and between developing countries and developed (see chart 9). Sterilization is by far the most common method in developing countries, with 45 per cent of users though only one quarter of these were male. The IUD comes next in popularity, with 23 per cent. In

CHART 9

Contraceptive methods used



Source: United Nations

the North, sterilization accounts for only 14 per cent of users and IUDs for 8 per cent.

Existing methods are very diverse in their effectiveness, risks and side-effects. Sterilization, male and female, approaches 100 per cent reliability, closely followed by injectables, then IUDs. The more the user is involved, the greater is the scope for error in use. Orals are between 82 per cent and 99.5 per cent effective – failures occur largely because of mistakes in taking the pill. With condoms the reliability ranges between 62 per cent and 97 per cent.

As for side-effects, barrier methods and rhythm have few or none though the risks of unwanted pregnancy and maternal mortality are higher. Sterilization carries the small risk attached to any minor surgical procedure. Hormonal methods, including pills, implants and injectables, can have side effects ranging from nausea and headaches to menstrual irregularities. Orals carry an increased risk of heart attack and stroke, particularly in older women, smokers, and women with high blood pressure. Lower dosage pills have been developed to minimize these risks.

Finally methods differ in convenience and cultural acceptability. Some methods may be less acceptable in some cultures – irregular bleeding, for example, is regarded as serious in some cultures and insignificant in others.

Users balance all the advantages and disadvantages they are aware of before deciding on a method – or no method. If they do not like the available alternatives, they will simply drop out and use no method at all, or revert to less reliable traditional methods. One recent study in East Java found that among women who were not given the method they preferred, eighty-five per cent had discontinued use within one year. Where women were given the method they wanted, the dropout rate was only 25 per cent.

Programmes that offer a wide choice of method are more likely to succeed than those which rely heavily on one or two methods. Adding one extra method to the mix available can increase contraceptive use by 6 percentage points. Adding programme choice also adds to the range of users. Sterilization, for example, accounted for 63 per cent of acceptors in the Indian programme in 1980, and 84 per cent in Nepal. Yet this method is suitable only for couples who want no more children. The programmes missed those who have not completed their families but need contraception to space births. The highly successful Indonesian programme, by contrast, offered a healthy mix of methods in 1987 – 34 per cent of acceptors used the pill, 28 per cent IUDs, 20 per cent injectables, 7 per cent sterilization, and 4 per cent condoms.

Users have different needs at different stages in their lives. Couples who do not yet wish to start a family may find the pill preferable. Couples who wish to put a space of two years or more between each birth might prefer a longer acting method like injectables, IUDs or implants. Those who have completed their families might prefer the permanence of sterilization. Women who are breastfeeding ought to avoid hormonal methods which may interfere with lactation or transfer unwanted material to the baby. Instead of focussing on *methods*, successful family planning programmes concentrate on *users*.

Diversity of technology allows a diversity of delivery channels. Some methods such as sterilization, insertion of IUDs or implants, require trained medical personnel. These services are likely to be further from the user's home – but the user may be willing to make the effort because the method is more certain or longer lasting. Networks that reach right into the user's community are effective as long as distributors have the training to identify and refer high-risk users. Non-clinical

BOX 10

Frontiers of technology

RESEARCH must continue for the ideal method of contraception: cheap, totally effective, risk-free, reversible, without undesirable side-effects, and simple enough for use without medical provision or supervision.

No such method is yet on the horizon. But research continues to push forward the frontiers, under conditions that have become more and more difficult.

The business of developing new contraceptives has changed radically. Drug companies are no longer the big players. Tighter controls on testing and rising risks of costly lawsuits have made them wary. The leading role has been assumed by the World Health Organizations (WHO) and by non-profit making bodies such as the Population Council, and Family Health International. Real spending on contraceptive research and development has not increased.

Some promising new candidates have been developed.

Norplant, already approved for use in seven countries, is probably closest to wide dissemination. It consists of six tiny rods containing the progestin hormone levonorgestrol. These are implanted under the skin of a woman's inside arm. Norplant, particularly suitable for women who have completed their families, prevents pregnancies for five years before it needs replacing. A two-rod version providing protection for three years is being developed. Norplant is highly effective, and unlike the injectable Depo-Provera, its contraceptive effect ends soon after it is removed. The drawback for some situations is that it requires a physician to insert and remove. The cost, at $2.80 per year of protection, is more than the pill at $1.95, but less than Depo-Provera at $4 per ye

Other long acting hormonal methods may be introduced during the 1990s. They include *biodegradable implants*, providing 18 months protection, and *injectable microspheres* lasting between one and six months. *Vaginal rings* containing levonorgestrol, which can be inserted and removed by the woman, are also under test. The Population Council is researching a *male vaccine*.

methods can be distributed through commercial channels.

Diversity, then, is the key to providing options. Diverse channels of distribution create the widest possible access to contraception. Diverse technology offers the widest possible choice of methods. The combination maximizes use.

5. Creating new demand

Meeting existing demand is important. But by itself it will not be enough to raise contraceptive use to the level required to reach the Amsterdam targets. In Africa, for example, an average of 14 per cent of women use contraception. An additional 3 – 9 per cent of women want no more children, but are not using any form of contraception. Meeting the whole of that unmet need would raise contraceptive usage to 17-23 per cent of fertile married women. But meeting the United Nations medium population projection implies that by the year 2000 the figure should be 27 per cent.

This is not in itself a high figure, but reaching it calls for efforts across a very wide field, directly by population information, communication and education, and also in those key areas that influence people's decisions on family size: health, education and improving women's status.

Getting the message across

Population information creates awareness of broad population issues among the public. Communication is more specifically geared to creating demand for family planning. Education may combine a varying mixture of both of these approaches in school or out-of-school learning programmes. The purpose of all three is to bring about a change in attitude towards the whole bundle of issues concerning population, development, and national and family well-being.

Widespread population information plays an important role at all stages, in countries where there is as yet little public awareness or government interest in population issues; later in the process when there is broader awareness but no commitment, and finally in explaining and supporting population policy. At its most basic, it involves publicizing the facts on population and its impact on resources and environment, and encouraging policy-makers and the media to pay more attention to these issues. This is not always easy. Population – along with many other grassroots development issues – is not seen as an exciting story. Even when government leaders realize the problems, the media may be slow to do more than report their speeches and make general exhortations. Training for media managers and reporters in identifying and presenting population stories can help. The media should also help in identifying the concerns of the public and presenting them to the leadership.

Information and communication is a two-way street. In population communication programmes, the message and the medium chosen must be suited to the needs and interests of the audience. Members of the target groups must be involved in the design of the communication programme, and material should be pre-tested to check its comprehensibility, cultural acceptability and impact.

The language must be easy to understand. In the Philippines, outreach workers translate unfamiliar family planning concepts into more familiar agricultural parallels. To illustrate the advantages of small families for the quality of children, they cite mango farmers who limit the number of fruits per branch; transplantation of rice seedlings at wider distances, so they grow more strongly, is used to illustrate the need for child spacing.

The visual message has to be carefully tailored. In one programme a cartoon depicted a young woman in pigtails taking her pill against a backdrop of the moon through an open window. Illiterate women thought the woman was a schoolgirl eating sweets in front of a classroom blackboard.

Not only the presentation, even the content of the message has to be carefully adapted to the needs and culture of the chosen audience. Too heavy an emphasis on small families may backfire. In Malawi for example, a small-family campaign some years ago ran into heavy public opposition and had to be withdrawn. Malawi's new programme emphasizes the benefits of child spacing for the health of the family.

The choice of medium is important, too. Outside urban areas, radio and film reach a wider audience than newspapers or TV. Research has shown that recall of radio messages is high, though it is important to back them up with visual messages and discussion groups.

Traditional media still have a big rural following. In Indonesia the traditional *wayang* shadow puppets have been widely used for all sorts of development messages, including population. In Nigeria's Ogun state travelling theatre groups have put on shows with population themes at local markets. For young people pop music is an influential medium.

The strongest impact of all will be achieved when a coherent campaign is mounted using a wide range of media and messages suited to a variety of target groups. It is also important to make sure that discussion and advertising is backed up with professional advice and services for those who want them.

Population education

Population education can start in school and now does, in over 70 countries. But the idea aroused strong opposition, perhaps because it was misunderstood to be sex education. As late as 1975 there were only 13 population education projects in developing countries. By 1988 there were over 100.

The subject matter may be general information about world and national population growth and movement, and their implications; "family life" topics such as responsible sex and parenthood; AIDS; and gender roles.

Population education is not a separate subject,

but is incorporated into the curriculum at several different points – geography, social studies, current affairs, biology and so on. So far most population education programmes have focussed on secondary school pupils. While the topic is essential at this level, there is a clear need to incorporate appropriate elements at primary level, with appropriate changes in content. Primary enrolment rates in developing countries range from 66 per cent in Africa to over 100 per cent in Latin America. At secondary level the enrolment rates are very much lower, between 16 per cent in Africa and 48 per cent in Latin America. If population education is restricted to secondary level, then the six out of every ten young people who do not attend secondary school in developing countries will not benefit.

To be fully effective, population education needs to be institutionalized, with its own specialized unit inside the ministry of education and a stable budget and staff; securely anchored in the curriculum, built into textbooks and examinations and into teacher training. The costs of introducing it can be much reduced if it is combined with major overhauls of the school curriculum.

But population education does not end with schooling. It can and should be incorporated in out-of-school education of all kinds, from literacy and vocational classes to workers' education, programmes by non-governmental groups, and extension programmes in health, nutrition and even agriculture.

Reaching neglected target groups

Most family planning programmes have focussed on married women. But demand for family planning can be increased by reaching new and neglected groups, especially teenagers, newly-weds and men.

The most neglected, yet in some ways the most crucial of these groups are *teenagers*. The numbers involved here are vast.

Half of African women in countries studied by the World Fertility Survey have had at least one birth by the time they are twenty. The proportion in Latin America is 38 per cent, and in Asia 36 per cent. Four out of every ten women in developing countries are married by the time they are eighteen – indeed one in seven is married by the age of fifteen and one in five by sixteen.

Young women are important targets for population programmes. If they begin childbearing young, their families will be larger, and the gap between generations shorter, than with women who marry later an average of 7.1 births per woman, against only 5.3 births per woman for those who marry after their twentieth birthday.

Very young women should avoid pregnancy for health reasons. They are more vulnerable to high blood pressure, anaemia, and other complications of pregnancy. As a result, in most countries mortality among pregnant women in the under-20 age group is between 1.1 and 3.5 times higher than in women aged 20-24. Infant and child mortality is higher by perhaps 50 per cent among children born to mothers under 20.

Early pregnancy is also one of the most serious obstacles to women's improved status. It is a major cause of early termination of schooling. One in ten secondary school girls in Kenya drop out each year through pregnancy. In Swaziland 80 per cent of girls who leave school early leave because of pregnancy. In most cases it is practically or socially impossible for girls to return to school afterwards. And the effects can last for the rest of their lives, making it harder to get paid employment, resulting in lower incomes and often in higher rates of marital breakdown.

Yet these groups are often the least provided with family planning services. In some countries it is illegal to provide contraceptives to unmarried women. In others parental consent may be required.

If young women – and the young men who will be their partners – are to be reached, family planning services should be open to all, regardless of age or marital status. Messages must be framed so as to appeal to young people, using channels that can reach them. As with all other groups, counsellors should be of similar age and social background to their clients. In Mexico, the Mexican Family Planning Association's *Gente Joven* (Young People) programme uses other young people as counsellors.

Another target group deserving increased attention is the *newly married*. In developed countries contraceptive use among newly-weds is not very different from older groups. But in most of the developing world there is little use of contraceptives between marriage and first pregnancy. Yet the evidence shows that where the first pregnancy is planned, all later pregnancies will also be planned. If newly-weds can be reached with promotional kits and with home visits for counselling, the chances that they will become lifelong users of contraception will be greatly increased. It will be even more increased if the older generation can be persuaded not to press for immediate gratification in the form of grandchildren.

Men are the third neglected group. World wide, a third of all contraceptive users rely on methods that demand male cooperation – vasectomy, condoms, withdrawal, or abstinence. Indeed in many countries the husbands' consent is required before the wife can be supplied with contraceptives.

It is sometimes said that men are more opposed to family planning than women, or want larger families than their wives. Survey evidence does not support this view: there tends to be not much difference between the sexes on these questions. In Kenya, for example, knowledge of methods of contraception and sources of supply was higher among men than among women. Yet every worker in this field has met women who say their husband would beat them if they began using contraceptives. While sometimes well-founded, that belief may often be based on nothing more than a hunch – 35 per cent of men surveyed in Kenya had never discussed family planning with

their wives. This is true in many parts of the world. It is often part of a deep-seated cultural pattern in which there is little communication of any sort across the sexual frontier.

Family planning programmes, which are usually part of the mother and child health services, either do not cater for the needs of men at all or effectively exclude them.

Many men in the modern sector can be reached through programmes based at the place of work. This can be a particularly economical and effective approach. It provides easy access for counselling and supplies, and reaches a group that may often be pace setters in social change. Kenya's Family Planning Private Sector Programme has over 30 projects in paper, sugar, tea and other factories, reaching over one million workers, many of them male. There have been programmes to reach the armed forces in South Korea, Thailand, Malaysia, Bangladesh and Turkey. Imaginative programmes can reach men in the informal sector, too: in Comilla, Bangladesh, one programme successfully targetted rickshaw pullers. UNFPA-funded workplace service and information programmes executed by the International Labour Organisation are standard components of many national programmes.

Special communication campaigns for men have begun for example to battle machismo by associating real masculinity with responsible paternity, or to promote condoms rather than children as reflecting sexual potency. But it is an area where much remains to be done.

Better services boost demand.

Meeting existing demand with sensitive and varied programmes, backed up with good communication, helps to create new demand. This is demonstrated by a curious relationship between greater acceptance of family planning and unwanted pregnancy; the higher the quality, effectiveness and outreach of family planning services, the higher the proportion of pregnancies that are still unwanted. In countries with very weak programmes or none, only 9 per cent of fertility is unwanted. In countries with strong or moderate family planning programmes, more than 20 per cent of fertility is unwanted. The reason for this paradox is probably that when services are poor, couples accept whatever number of children God or Fate may send them. When services are good, they develop the desire to bring fertility under their own control to suit their own needs and those of their families.

Strong family planning programmes may in fact help bring about social change by speeding the transition from large families, high infant mortality and short life expectancy to small families, low infant mortality and longer life expectancy.

PART THREE: HUMAN RESOURCE DEVELOPMENT – A NEW PRIORITY

WORKING on education, women's status, health and family planning separately brings its own benefits and also reduces fertility to some degree (see box 11).

But all four factors working together reinforce each other and enhance the overall effect. Improvements in women's status, rights and earning power encourage parents to keep their daughters longer at school. Better and more widespread female education improves women's status, mother and child health, and family planning use. Lower fertility and more use of family planning improve child health and survival and sets women free to pursue other goals.

Wider availability of family planning allows a woman freedom to pursue further education or employment; without the risk of early and frequent pregnancies and childbirth, her family will be more secure and her life richer.

If family planning were universally used to avoid the high-risk pregnancies – before the mother is eighteen, after the age of 35, spaced closer than two to three years apart, and with higher numbers of previous pregnancies – it could potentially save 5 million infant lives each year and cut deaths of mothers in childbirth by almost half. It could also slash the number of unwanted pregnancies that end in abortion. The resulting improvement in child survival, would further reduce fertility and increase the use of family planning.

BOX 11

Family planning effort and the birth rate

FAMILY planning programmes can have their own independent effect on the birth rate. Research by Robert Lapham and W. Parker Mauldin has shown that at any given level of social development, the stronger the family planning effort, the greater the decline in the birth rate (see chart 10).

In countries with a high level of socio-economic development, for example, the birth rate decline between 1965 and 1980 in those with a strong family planning programme was three times faster than in those with a very weak programme or no programme.

But conversely, the level of socio-economic development has its own effect on the birth rate. Among countries with weak programmes, the birth rate fell by 27 per cent in countries with a high level of socio-economic development – but did not fall all in those with a low level.

Clearly, the greatest impact is achieved when a high level of socio-economic development combines with a strong family planning programme.

Because of these complex interactions, all four initiatives should be seen as integral and inseparable parts of the development of human resources. The countries which have enjoyed the speediest fertility declines have not only had strong family planning programmes, but have also performed well in health and education and women's status generally. The contrast in spending on health and education between these countries, and those in the same region where fertility has declined much more slowly, is very striking. Thailand, for example, spent 5.4 per cent of her GNP on health and education in 1986 – against only 2.4 per cent in the Philippines. In the same year Zimbabwe spent 10.2 per cent of GNP, Zaire only 1.2 per cent. Cuba devoted 9.4 per cent of GNP to health and education, Haiti a mere 2.1 per cent.

1. Finding the resources

Improving the quality of life, extending choices and options, will demand an increase in resources devoted to human development, to health, education, women's programmes, and population activities.

Population

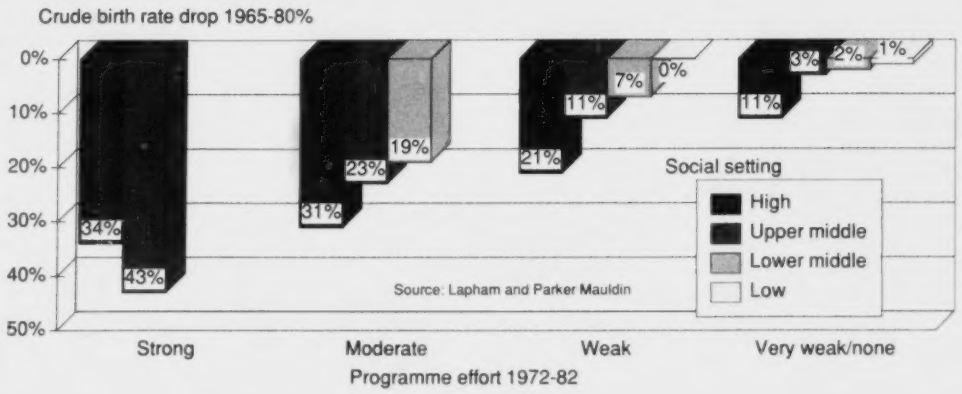
The population sector is small but healthy at the start of the 1990s, but its future security is in some doubt. With few exceptions family planning has never commanded more than a small proportion of government budgets in developing countries. In the 1980s it accounted for shares ranging from 0.04 per cent in Singapore to a 1.2 per cent in Zimbabwe, and an exceptional 3.1 per cent in Bangladesh. The amount spent per head of population is also low, averaging $0.51, again with a wide range from $0.19 in Tanzania up to $3.20 in Swaziland.

The share of spending financed by aid varies widely. Foreign donors financed 93 per cent of Swaziland's family planning budget in the 1980s, for example, but only 19 per cent in India and 9 per cent in South Korea.

From very modest beginnings, population assistance rose steeply from around 1968 to 1975, fuelled by concern over the world food crisis. There followed a plateau up to 1983, partly due to severe recession and cuts in donor government spending. Population assistance reached a peak in real terms in 1985, falling thereafter until in 1988, real population assistance per person in the developing countries was 18 per cent down on 1985, and totalled only $675 million, or 1.1 per cent of total development assistance.

Past levels of spending on family planning will not be adequate to meet the challenges of the future.

CHART 10 Impact of fertility on family planning



The numbers of women of reproductive age, from around 717 million now to 874 million in the year 2000 will grow. Just to maintain the present level of contraceptive use, the numbers of women using family planning would have to rise by 157 million.

But the present level of use will not be high enough. The United Nations medium population projection requires that fertility in developing countries should drop from 3.9 children per woman now to 3.3 by the end of the century. The level of fertility is strongly related to the proportion of women using contraception. It has been estimated that there must be a 10 per cent rise in contraceptive use for every drop of 0.7 in the fertility rate. To keep the world's population to 8.5 billion in 2025, the proportion of couples contracepting must rise from 45 per cent in 1983 to 56 per cent or more in the year 2000. In numerical terms this is a steep increase from 326 million to around 535 million.

How much would it cost to provide over half a billion couples with contraceptive services? Estimates vary, but most put the figure at $5.3 to $6.5 billion, for family planning services alone. The additional cost of family planning efforts to reach the *low* projection would be quite modest – only an extra $365 million per year by 2000 AD.

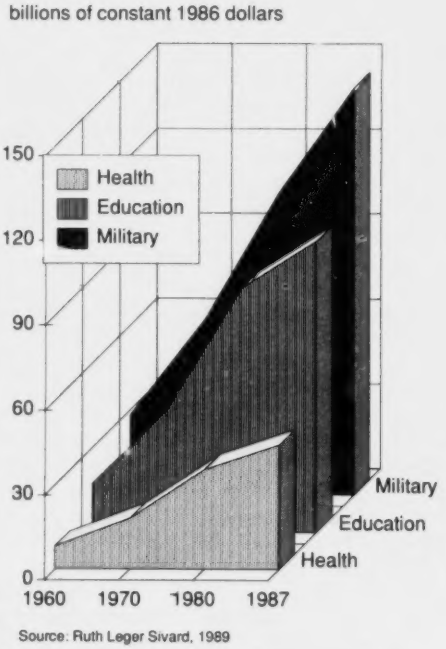
A whole range of backup activities are also needed, from research and evaluation to population education and communication, and women's programmes. These could cost an extra $3.1 to $4.6 billion a year by the year 2000.

Total costs would range from $8.4 to $11.1 billion. The best guess indicates that a minimum of $9 billion, at today's prices, would be required – twice the current level. To reach that target by the end of the century would require an annual increase of 7 per cent a year.

Changes of this magnitude need lead time to gain momentum. *The necessary programme increases will be secured by setting them in motion in the first years of the decade. Funding increases should start immediately.*

CHART 11

Military and social spending by developing countries



Health and education

Increased funding will also be needed for health and education.

In the health sphere, WHO has suggested that if health spending in developing countries were increased by only $2 per head (a total increase of $8 billion), all children could be immunized, drugs provided to cure all cases of diarrhoeal disease, acute respiratory infection, malaria, schistosomiasis and sexually transmitted diseases. An investment of only $50 million – the cost of a modern commercial building in New York – could save two million lives lost to diarrhoeal diseases each year.

To teach the world's 560 illiterate women to read might cost $14 billion. To give primary

education to the 106 million out of school primary age children projected for the year 2000, at an average cost of $25 per pupil, would cost less than $3 billion. Costings for this year's World Conference on Education For All suggest that an additional investment of $5 per pupil on educational materials – costing $1 billion a year globally – could improve the effectiveness of education and produce net savings within a few years. Research in Brazil has indicated that every $1 spent on quality improvement saves $4 in the cost per graduate of the primary school system.

For Africa, the World Bank has suggested a doubling of spending on human resource development, from the current 4-5 per cent of GNP to 10 per cent by the end of the century, with 0.8 per cent earmarked for family planning.

Raising the funds.

The total required investment in human resources seems large. But like all sound investments, it shows benefits over time. Countries like the Republic of Korea, Malaysia and Thailand, which have invested heavily in health and education since the 1960s, have attracted foreign investment and produced faster economic growth. Improvements in health, education and family planning reduce population growth and reduce the future cost of schooling and health services.

Whatever the future returns, investment is needed now; and that is not so easy. In recent years the trend in many countries has been retrograde.

The fate of human resource development in developing countries cannot be isolated from the overall financial situation. While the debt burden more than doubled from $610 billion in 1980 to $1,319 billion in 1988, net transfers of funds – $20 billion in developing countries' favour in 1980 – had turned into a net outflow totalling $52 billion a year in 1988. The poor countries were financing the rich, and to do so they had to rein back their own levels of consumption and growth. With much lower debt levels, East and South Asia achieved good growth levels. But in Africa per capita incomes fell by 2.5 per cent a year between 1981 and 1988, and in Latin America by 0.7 per cent a year.

Government spending in many developing countries was cut back. Spending on social services suffered disproportionately: cuts here were less likely to cause riots than cuts in government employment or subsidies for food or petrol.

Between 1982 and 1987, for example, developing countries' spending on health and education dropped from 18 per cent of government budgets to 15 per cent. Defence fell far less, from 13.2 per cent to 12.6 per cent. The situation in heavily indebted countries was far worse – in some cases the share of these social services in public spending fell by more than half. Since health and education efforts have a strong impact on lowering fertility, these cutbacks will mean higher fertility than would otherwise have been the case.

The separate fate of family planning spending is not yet clear, but in five out of ten countries for which trend data are available, real per capita spending on family planning has fallen in recent years. In practice this means reduced levels of service. Staff vacancies are left unfilled, creating gaps in management or outreach cover. Transport budgets are cut, making supervision difficult. Shortages of supplies of contraceptives develop. Users find they cannot get their next cycle of pills. Not only are they exposed to unwanted pregnancy, but their confidence in the service is undermined.

In Mexico the national health budget was cut by two thirds between 1982 and 1986. The slower progress in family planning registered since 1982 may be related to these cuts. Between 1982 and 1987 the number of users of modern methods rose only a third as fast as between 1976 and 1982.

As first priority this decline in social spending must be halted. This will mean debt relief measures, and in many cases increased assistance to insulate human resource investment from budget cuts. There is ample scope for increasing assistance. From Western donors, for example, the 1988 total of $44.3 billion represented a mere 0.35 per cent of GNP. On the eve of the Fourth United Nations Development Decade, this was still only half the target share of 0.7 per cent set as far back as 1971, at the start of the Second Decade.

In an era of decreasing superpower tension, military expenditure is another source that could be tapped. The military budgets of the USA and the USSR totalled $552 billion in 1986. A ten per cent cut in the US arms budget alone would yield $28 billion.

Developing countries' own spending priorities must be reordered. Military spending amounted to $142.5 billion in 1986 – $38 for every man, woman and child – and it has increased faster than spending on health and education.

The way resources are spent is at least as important as the total amount of resources. The human resource budget in developing countries is often highly skewed. Health spending goes disproportionately to curative facilities in large cities. A high share of education spending goes to urban areas and to the tertiary level. A shift in the distribution of government spending, from urban to rural, from curative health care to preventive, from tertiary to primary and secondary education, would produce a much greater impact on general levels of health and education at no extra cost, as well as encouraging rural development and slowing the flight to the cities.

Improved efficiency has an important contribution to make. Better management, better supervision and tighter management of supplies are needed in all public sector programmes, including health, education and family planning.

Cost-effectiveness is important. In many areas there is some scope for cost recovery. Couples are often willing to pay for contraceptives. Communities all over the Third World have shown themselves willing to make contributions in land, labour, cash and other resources to local schools and clinics.

CONCLUSION

The proposed international strategy for the Fourth Development Decade includes human resource development as one of its top priorities. This report has endorsed that view, and stressed that the new emphasis will be incomplete if it does not include a due place for family planning and population programmes. Human resource development is the only sector of development that is both a means and an end in itself. An end, because it improves equity and the quality of life. A means, because it is the foundation of sustainable economic growth.

This report has also emphasized the key role of the population variable in environment. Any analysis which excludes the population factor is incomplete. The population factor should be an integral part of all national and international plans to preserve the environment.

In all areas we have highlighted the importance of choice: the freedom of choice that flows from improved access to family planning, education and health care, and improved status for women. Only from that freedom can flow the slower population growth that will enlarge the freedom of choice for future generations.

At this juncture we are not talking about the interests of distant descendants. It is our own children who will inherit a world twice the size of our own, who will farm one acre where we have three, who will be denied the diversity of life we have enjoyed, unless we initiate the measures needed to keep future options open.

Such action brooks no delay. It must begin in the first years of this critical decade.

RECOMMENDATIONS

1. Every effort should be made to reduce total fertility (an average denoting the number of children per woman) in developing countries to the level needed to achieve the medium United Nations population projections: from 3.9 children per woman in 1990 to 3.2 in 2000-2005. This will require an increase in women family planning users from 326 million today to 535 million in the year 2000. With sustained efforts of the kind already achieved by many developing countries, it should be possible to attain the low projection figure of 2.73 children per woman by 2000-2005.

2. The surest way to achieve sustained decline in fertility is to give a new priority to "social" or "human resources" investment, to improving mother and child health, women's status and education, and to making family planning as widely available as possible to both women and men. Special efforts are needed to change male attitudes and enlist male support for and participation in family planning programmes.

3. Improved education, especially for girls and women, is crucial. As a minimum target the goal of universal female enrolment in primary school by 2000 should be endorsed. Every effort should be made to raise female secondary enrolment to the level of male, and to increase both. Literacy programmes should target women.

4. Every effort should be made to reduce infant mortality in developing countries from its present level of 71 deaths per 1,000 births to 50 or less by 2000 AD.

5. Family planning has an important contribution to make to the improvement of mother and child health and the reduction of infant and maternal mortality. A reduction in the share of births before the age of 18, after the age of 35, spaced less than three years apart, and exceeding five in number, should be fostered through education and appropriate services.

6. Efforts in women's advancement, health, education and family planning are mutually reinforcing and should be pursued in parallel.

7. Political backing is essential to the success of population programmes, to ensure legitimacy and secure stable budgets and staffing.

8. Population planning should be integrated with all other aspects of development planning, with its own specialized unit in Ministries of Planning. Population activities should be coordinated by a National Population Council with other development activities with which they interact.

9. Involvement of community leaders and members is indispensable. They should be consulted about services, methods and messages, and involved in delivery of supplies and evaluation.

10. Access to family planning should be improved by bringing services closer to the user, including integration of family planning into primary health care networks at village level.

11. Community based distribution, using trusted members of the community to supply contraceptives, and social marketing, using commercial channels, should be more widely used.

12. Programmes should provide a wide choice of family planning methods so that couples can select one that suits their needs and stage of family formation.

13. Research should receive adequate public funding to develop methods that are cheaper, simpler, more reliable, with fewer risks and side-effects, and easily reversible.

14. Quality of service is crucial in achieving quantity of recruits for family planning. Key elements are: reliability of supplies, good referral in cases of need, and good counselling on methods and side-effects.

15. Population education should get its own unit in ministries of education, and be extended down to primary level so as to reach a majority of pupils.

16. The neglected groups of young people, newly weds, and adult men should receive greater attention in population programmes.

17. Relief for countries badly affected by debt burden and poor commodity prices is essential if human resource programmes are not to suffer from budget cuts. When budgets are cut, such programmes should be protected as far as possible.

18. Population programmes should receive a higher proportion of international assistance. Total population spending on family planning in developing countries should be doubled to $9 billion a year at present prices, by the end of the century. This increase should be set in motion in the early years of the 1990s.

19. Human resource development should receive the highest priority in the Fourth Development Decade. National spending in developing countries on education and health (including family planning) should be raised to at least 5 per cent of GNP. Aid and adjustment policies should be tailored to support this goal.

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POPULATION INDICATORS

	Population in thousands mid-1990	Population in thousands 2025	Growth rate (%) 1990-95	Government appraisal 1988†	Birth rate per 1,000 1990	Death rate per 1,000 1990	Life expectancy 1990	Infant mortality per 1,000 1990	Per cent urban 1990	Urban growth rate (%) 1990-95	Fertility rate per woman 1990
World Total	5,292,177	8,466,516	1.7		26	9	63	64	43	2.6	3.3
More Developed Regions (•)	1,205,192	1,352,086	0.5		13	9	74	12	72	0.8	1.9
Less Developed Regions (+)	4,086,985	7,114,429	2.1		29	9	61	71	33	3.6	3.7
Africa	647,518	1,580,984	3.0		43	13	53	96	34	4.9	5.1
Eastern Africa (1)	194,822	523,024	3.2		47	15	51	106	22	6.4	6.6
Burundi	5,451	13,099	2.9	H	44	15	51	102	7	7.7	6.1
Ethiopia	46,743	112,268	2.7	H	46	21	43	142	12	5.2	6.3
Kenya	25,129	77,615	4.1	H	50	9	60	64	23	7.3	7.6
Madagascar	11,979	32,983	3.2	S	44	12	55	110	25	5.9	6.5
Malawi	8,427	22,804	3.3	H	51	18	48	138	14	7.0	6.9
Mauritius (2)	1,103	1,479	1.2	S	17	5	70	19	42	1.7	1.9
Mozambique	15,663	34,368	2.7	S	43	16	48	130	26	7.6	6.2
Rwanda	7,231	18,079	3.4	H	49	15	50	111	7	7.4	8.0
Somalia	7,554	18,903	2.4	S	46	18	46	121	36	4.4	6.5
Uganda	18,441	55,198	3.5	H	49	13	53	93	10	6.1	6.8
Tanzania	27,328	84,783	3.7	H	49	12	54	96	32	7.9	7.0
Zambia	8,455	25,465	3.7	H	49	12	55	71	55	5.5	7.0
Zimbabwe	9,720	22,620	3.1		39	8	60	64	27	5.4	5.3
Middle Africa (3)	69,563	179,645	2.0		44	14	52	98	39	4.9	6.0
Angola	10,020	24,730	2.8	S	46	18	46	127	28	5.4	6.3
Cameroon	11,245	26,177	2.7	H	41	14	52	86	49	5.0	5.7
Central African Rep.	2,912	6,814	2.5	H	43	18	47	122	46	4.2	5.8
Chad	5,678	13,244	2.5	S	43	17	47	122	33	5.8	5.8
Congo	1,994	4,963	2.8	L	43	15	50	65	42	4.3	5.8
Gabon	1,170	2,927	3.3	L	43	15	53	94	45	5.1	5.3
Zaire	35,990	99,512	3.2	S	44	12	54	90	39	4.8	6.0
Northern Africa (4)	142,648	275,020	2.5		34	9	61	73	44	3.7	4.8
Algeria	25,363	50,590	2.9	H	36	7	64	60	44	4.1	5.2
Egypt	54,059	93,976	2.2	H	30	8	63	70	48	3.4	4.2
Libyan Arab Jamahiriya	4,544	12,846	3.6	S	43	8	63	68	70	4.7	6.7
Morocco	25,138	44,367	2.4	H	31	8	63	68	48	3.8	4.2
Sudan	25,195	59,594	2.9	S	43	14	51	99	22	4.6	6.3
Tunisia	8,168	13,283	1.0	H	26	6	67	47	54	2.7	3.4
Southern Africa	40,972	78,022	2.3		31	8	62	66	55	3.3	4.4
Botswana	1,285	3,363	3.5	H	44	9	60	58	23	7.0	5.9
Lesotho	1,773	4,272	2.8	H	39	10	58	89	20	6.2	5.6
Namibia	1,875	4,948	3.1		41	10	58	97	56	4.8	5.7
South Africa	35,248	63,232	2.1	H	29	8	62	62	58	3.1	4.2
Western Africa (5)	199,511	525,271	3.3		47	14	51	102	33	5.5	6.7
Benin	4,740	12,987	3.2	S	49	17	48	101	41	5.9	6.9
Burkina Faso	9,006	22,677	2.8	S	46	17	49	126	9	5.9	6.4
Côte d'Ivoire	12,595	39,842	3.9	S	50	12	54	87	46	5.6	7.3
Ghana	15,020	37,031	3.1	H	42	11	56	81	33	4.3	6.2
Guinea	6,875	15,710	2.5	S	45	20	44	136	25	5.2	6.1
Liberia	2,553	7,240	3.3	H	44	12	56	79	44	5.1	6.4
Mali	9,361	24,141	3.0	S	48	19	46	159	19	4.7	6.6
Mauritania	2,024	4,962	2.8	S	45	17	48	116	42	5.7	6.4
Niger	7,109	18,940	3.1	H	50	18	46	124	19	6.5	7.0
Nigeria	113,016	301,312	3.5	H	48	14	52	96	35	5.7	6.8
Senegal	7,369	16,364	2.7	H	44	17	47	117	38	4.1	6.2
Sierra Leone	4,150	9,640	2.6	H	47	21	43	142	32	5.0	6.4
Togo	3,454	9,500	3.1	S	43	12	55	85	25	5.9	6.0

	Population in thousands mid-1990	2025	Growth rate (%) 1990-95	Government appraisal 1988[1]	Birth rate per 1,000 1990	Death rate per 1,000 1990	Life expectancy 1990	Infant mortality per 1,000 1990	Per cent urban 1990	Urban growth rate (%) 1990-95	Fertility rate per woman 1990
Latin America	448,096	760,378	1.9		26	7	67	49	72	2.7	3.3
Caribbean (6)	33,639	48,758	1.4		23	7	67	52	59	2.4	2.8
Cuba	10,324	11,967	0.9	S	15	7	74	13	74	1.6	1.7
Dominican Rep.	7,169	11,447	1.0	H	28	6	67	57	60	3.3	3.3
Haiti	6,504	11,534	1.9	H	33	11	56	106	30	4.0	4.4
Jamaica	2,520	3,758	1.4	H	22	5	74	16	52	2.5	2.4
Puerto Rico	3,708	5,177	1.3		19	6	75	13	73	2.0	2.3
Trinidad and Tobago	1,282	1,918	1.5	H	21	6	71	18	69	2.6	2.5
Central America (7)	117,669	213,186	2.2		28	5	69	42	66	2.9	3.5
Costa Rica	3,014	5,250	2.3	H	25	4	75	17	53	3.6	3.0
El Salvador	5,251	11,299	2.5	H	36	6	66	48	44	3.5	4.5
Guatemala	9,196	21,668	2.9	S	38	7	64	48	41	4.0	5.4
Honduras	5,138	11,510	2.0	H	37	7	65	57	43	4.7	4.9
Mexico	88,597	150,061	2.0	H	26	5	70	41	72	2.7	3.1
Nicaragua	3,870	9,219	3.2	H	38	6	66	50	59	4.2	5.0
Panama	2,417	3,861	1.9	S	24	5	72	21	54	2.9	2.9
South America (8)	296,786	498,433	1.9		26	7	66	52	76	2.6	3.3
Argentina	32,321	45,504	1.2	L	20	8	71	29	86	1.5	2.8
Bolivia	7,313	18,294	2.8	L	41	12	55	93	51	4.2	5.8
Brazil	150,367	245,808	1.9	S	26	7	66	57	76	2.7	3.2
Chile	13,173	19,773	1.6	S	22	6	71	19	85	1.9	2.7
Colombia	31,819	51,718	1.9	S	26	7	65	42	70	2.6	3.3
Ecuador	10,781	22,909	2.7	H	33	7	66	57	56	4.1	4.3
Guyana	1,039	1,569	1.5	S	21	5	70	25	34	3.2	2.4
Paraguay	4,276	9,182	2.7	S	33	6	67	39	47	4.0	4.3
Peru	22,332	41,006	2.4	H	31	7	64	76	70	3.1	4.0
Uruguay	3,128	3,875	0.7	L	18	10	71	25	85	1.0	2.5
Venezuela	19,735	38,000	2.4	S	28	5	70	33	90	2.8	3.5
Northern America (9)	275,880	332,997	0.7		13	8	76	7	74	0.8	1.8
Canada	26,525	32,051	0.8	S	12	7	77	6	76	1.0	1.7
United States of America	249,235	300,796	0.7	S	14	8	76	7	74	0.8	1.9
Asia	3,108,475	4,889,451	1.8		26	8	63	64	29	3.3	3.2
Eastern Asia (10)	1,334,018	1,728,571	1.3		19	6	71	25	29	2.1	2.1
China	1,135,495	1,492,550	1.3	H	19	6	70	26	21	2.7	2.2
Hong Kong	5,840	6,952	1.1		13	6	76	6	93	1.2	1.6
Japan	123,456	128,595	0.5	S	12	7	78	5	76	0.6	1.8
Korea	66,519	94,232	1.4		20	5	70	20	70	2.6	2.3
Korea, Dem. People's Rep. of	22,936	39,606	2.2	L	26	4	70	20	67	3.0	3.2
Korea, Republic of	43,582	54,626	0.0	H	16	6	70	20	72	2.3	1.8
Mongolia	2,226	5,419	3.1	S	37	7	65	39	51	3.6	5.2
Southeastern Asia (11)	440,830	700,544	1.8		26	8	61	58	29	3.8	3.2
Cambodia	8,245	13,988	2.2	L	36	14	50	115	11	4.2	4.4
Indonesia	180,513	263,250	1.5	S	25	10	58	74	28	4.0	2.9
Lao People's Dem. Rep.	4,070	7,735	2.4	L	38	14	50	97	18	5.5	5.3
Malaysia	17,339	27,886	2.0	S	25	5	70	20	42	3.9	3.1
Myanmar	41,675	72,619	2.1	S	29	8	62	59	24	3.2	3.7
Singapore	2,701	3,238	0.0	S	15	5	73	7	99	1.0	1.7
Thailand	55,701	80,911	1.4	S	20	6	67	32	22	4.0	2.2
Viet Nam	67,170	117,971	2.2	S	30	8	63	53	21	4.2	3.7
Southern Asia (12)	1,202,857	2,173,800	2.3		33	10	59	91	27	4.2	4.5
Afghanistan	16,556	41,062	6.7	H	52	21	43	162	21	9.7	6.8
Bangladesh	115,593	234,986	2.7	H	40	13	52	107	13	5.6	5.1
Bhutan	1,516	3,069	2.3	L	38	15	49	118	5	5.9	5.5
India	853,372	1,445,570	2.1	H	31	10	60	87	28	4.1	4.1
Iran, Islamic Republic of	56,585	122,169	2.6	S	39	6	67	53	54	3.7	5.4
Nepal	19,143	34,972	2.3	H	36	12	53	118	9	6.5	5.5
Pakistan	122,666	267,088	2.9	H	41	10	59	98	31	4.5	5.9
Sri Lanka	17,209	24,448	1.3	H	20	5	71	28	21	2.2	2.5

	Population in thousands mid-1990	2025	Growth rate (%) 1990-95	Government appraisal 1988[1]	Birth rate per 1,000 1990	Death rate per 1,000 1990	Life expectancy 1990	Infant mortality per 1,000 1990	Per cent urban 1990	Urban growth rate (%) 1990-95	Fertility rate per woman 1990
Western Asia (13)	130,769	286,534	2.7		33	7	65	58	58	3.7	4.7
Democratic Yemen	2,490	6,402	3.2	S	46	14	53	106	43	4.9	6.5
Iraq	18,919	49,992	3.4	L	40	6	66	56	74	4.1	5.9
Israel	4,580	6,932	1.4	L	20	6	76	9	91	1.7	2.7
Jordan	4,269	13,129	4.0	H	45	5	67	36	68	4.9	6.9
Kuwait	2,090	4,350	3.1	L	28	2	73	16	95	3.3	4.3
Lebanon	2,965	4,950	2.1	S	27	7	68	34	83	2.5	3.1
Oman	1,468	4,308	3.3	L	44	10	58	84	10	6.9	7.1
Saudi Arabia	14,131	44,780	3.8	L	41	6	65	58	77	4.6	7.1
Syrian Arab Republic	12,500	32,270	3.5	S	41	5	67	39	51	4.5	6.3
Turkey	55,616	89,646	1.9	H	26	7	66	62	48	3.0	3.2
United Arab Emirates	1,588	2,692	2.2	S	20	3	71	22	77	2.2	4.3
Yemen	8,016	23,337	3.2	S	47	13	53	102	24	6.6	6.8
Europe	497,740	512,290	0.2		12	10	75	10	73	0.6	1.7
Eastern Europe	113,573	123,291	0.3		13	10	72	15	63	0.9	1.9
Bulgaria	9,010	8,944	0.1	L	12	11	73	14	70	0.9	1.8
Czechoslovakia	15,667	17,181	0.3	S	13	11	72	13	68	1.1	2.0
German Dem. Rep. (14)	16,649	16,155	0.0	L	11	11	74	8	77	0.3	1.7
Hungary	10,551	10,199	0.1	L	11	12	71	16	60	1.0	1.8
Poland	38,423	45,065	0.5	S	14	9	71	16	63	1.1	2.1
Romania	23,271	25,744	0.5	S	15	10	71	19	50	1.0	2.0
Northern Europe (15)	83,793	85,751	0.2		13	11	76	7	87	0.4	1.8
Denmark	5,120	4,971	0.0	S	11	11	76	6	86	0.3	1.5
Finland	4,974	5,120	0.2	S	11	10	75	5	67	1.2	1.7
Ireland	3,719	4,958	0.9	S	17	8	75	7	59	1.7	2.4
Norway	4,211	4,504	0.3	S	12	10	77	6	74	0.7	1.7
Sweden	8,339	8,135	0.0	S	11	12	77	5	83	0.1	1.7
United Kingdom	56,926	57,463	0.1	S	13	11	76	7	92	0.3	1.8
Southern Europe (16)	144,534	150,270	0.3		12	9	75	12	64	1.0	1.7
Albania	3,245	5,010	1.6	S	21	5	72	32	35	2.7	2.7
Greece	10,047	10,080	0.2	L	11	10	76	13	62	1.0	1.7
Italy	57,321	54,919	0.1	S	11	10	76	9	68	0.5	1.5
Portugal	10,284	10,934	0.3	S	13	10	74	12	33	1.8	1.7
Spain	39,332	42,530	0.4	S	12	9	77	8	78	0.9	1.7
Yugoslavia	23,848	26,291	0.5	S	13	8	73	20	50	2.0	1.9
Western Europe (17)	155,838	152,975	0.1		12	10	76	7	80	0.3	1.6
Austria	7,492	7,042	0.0	S	11	11	75	9	57	0.5	1.5
Belgium	9,938	9,920	0.1	S	11	11	75	8	96	0.2	1.6
France	56,173	60,442	0.4	L	13	9	76	6	74	0.6	1.8
Germany, Fed. Rep. of (14)	60,539	53,965	0.1	L	10	11	75	8	86	0.1	1.4
Netherlands	14,751	15,081	0.3	S	11	8	77	7	88	0.4	1.5
Switzerland	6,520	6,117	0.1	S	11	10	77	6	59	0.5	1.6
Oceania	26,476	38,964	1.3		19	7	69	23	70	1.3	2.5
Australia-New Zealand	20,124	26,752	1.0		14	7	76	7	85	1.1	1.8
Australia (18)	16,745	22,686	1.1	S	14	7	76	6	85	1.1	1.8
New Zealand	3,378	4,066	0.7	S	15	8	75	9	84	0.9	1.8
Melanesia (19)	5,417	10,913	2.4		34	9	59	47	21	4.1	4.3
Papua New Guinea	4,011	8,600	2.5	H	36	10	56	52	15	4.9	5.3
USSR	287,990	351,450	0.7	S	16	9	70	20	67	1.2	2.3

SOCIAL INDICATORS

	Family Planning Users (%)	Family Planning Government support[†]	Adult literacy 1985 M/F	Secondary school enrolment 1980-1988 M/F	Births attended by health worker (%) 1983-1988	Access to health services (%) 1985-1987	Access to safe water (%) 1985-1987	Food production per capita (1979-1981=100)	Agricultural pop. per ha. of arable land 1986	GNP per capita (US$) 1987	Health/ education as % of GNP
Africa											
Eastern Africa (1)											
Burundi	8	Y	43/26	6/3	21	61	26	102	3.4	250	3.5
Ethiopia		Y		18/12	14	46	16	94	2.5	130	5.2
Kenya	17	Y	70/49	27/19	28		30	90	7.1	330	7.9
Madagascar		Y	74/62	23/19	62	56	32	91	2.6	210	5.3
Malawi	6	Y	52/31	5/3	45	80	56	83	2.4	160	6.1
Mauritius (2)	75	Y	89/77	53/50	85	100	100	99	2.5	1,490	5.1
Mozambique		Y	55/22	7/4	28	39	16	84	3.8	170	
Rwanda	10	Y	61/63	7/5	22	27	50	75	5.2	300	3.8
Somalia			18/6		2	27	34	98	3.2	290	6.2
Uganda		Y	70/45	16/9	45	61	20	82	2.0	260	1.3
Tanzania		Y	93/88	5/3	60	76	56	86	3.6	180	5.4
Zambia		Y	84/67			75	59	92	0.9	250	6.5
Zimbabwe	38	Y	81/67	49/42	69	71		97	2.3	580	10.2
Middle Africa (3)											
Angola		Y	49/33		15	30	30	85	1.8		4.4
Cameroon	2	Y	68/45	32/20		41	33	95	0.9	970	3.5
Central African Rep.		Y	53/29	17/6	66	45		83	0.9	330	6.5
Chad		Y	40/11	10/2	24	30		105	1.3	150	2.6
Congo		Y	71/55			83	21	94	1.6	870	7.0
Gabon		N	70/53		92	90	92	82	1.8	2,700	6.8
Zaire		Y	79/45			26	33	94	3.2	150	1.2
Northern Africa (4)											
Algeria		Y	63/37	61/46	15	88	68	95	0.8	2,680	8.3
Egypt	29	Y	59/30	79/58	47		73	120	8.1	680	
Libyan Arab Jamahiriya		N	81/50		76		97	90	0.2	5,460	13.1
Morocco	35	Y	45/22	43/30	29	70	60	122	1.1	610	6.9
Sudan	4	Y	33/14	23/17	20	51	21	100	1.2	330	4.2
Tunisia	41	Y	68/41	46/34	68	90	68	90	0.4	1,180	7.7
Southern Africa											
Botswana	27	Y	73/69	31/33	77	89	54	75	0.6	1,050	12.0
Lesotho	5	Y	62/84	18/26	40	80	36	86	4.3	370	5.1
Namibia								98	0.9		
South Africa	48	Y						88	0.4	1,890	5.2
Western Africa (5)											
Benin	9	Y	37/16	23/9	45	18	52	112	1.5	310	4.3
Burkina Faso		Y	21/6	8/4	30	49	67	121	2.5	190	3.4
Côte d'Ivoire	2	Y	53/31	26/12	20	30	19	94	1.7	740	6.1
Ghana	9	Y	64/43	49/32	40	60	56	108	2.6	390	3.8
Guinea		Y	40/17	13/4	25	32	19	90	3.0		4.0
Liberia	6	Y	47/23		87	39	55	93	4.4	450	6.5
Mali	4	Y	23/11	9/4	27	15	17	108	3.3	210	3.9
Mauritania	0	Y		23/9	20	30		91	6.5	440	7.9
Niger		Y	19/9		47	41	47	98	1.5	260	4.8
Nigeria	4	Y	54/31		40	40	46	96	2.1	370	1.8
Senegal	11	Y	37/19	19/10	50	40	53	103	1.0	520	5.7
Sierra Leone		Y	38/21	23/9	25		25	89	1.3	300	3.7
Togo		Y	53/28	36/12	15	61	55	87	1.5	290	7.1

	Family Planning Users (%)	Family Planning Government support[11]	Adult literacy 1985 M/F	Secondary school enrolment 1980-1988 M/F	Births attended by health worker (%) 1983-1988	Access to health services (%) 1985-1987	Access to safe water (%) 1985-1987	Food production per capita (1979-1981=100)	Agricultural pop. per ha. of arable land 1986	GNP per capita (US$) 1987	Health/ education as % of GNP
Latin America											
Caribbean (6)											
Cuba		Y	96/96	85/92				105	0.6		9.4
Dominican Rep.	50	Y	78/77		57	80	63	91	1.7	730	3.0
Haiti	6	Y	40/35	19/17	40	70	38	89	4.7	360	2.1
Jamaica	51	Y		62/67	89	90	96	98	2.8	940	8.4
Puerto Rico	70										
Trinidad and Tobago	52	Y	97/95	80/85	98	99	98	71	0.9	4,210	8.8
Central America (7)											
Costa Rica	69	Y	94/93	40/43	93	80	91	86	1.4	1,610	10.1
El Salvador	47	Y	75/69	27/30	35	56	52	88	3.2	860	3.3
Guatemala	23	Y	63/47		34	34	38	96	2.4	950	2.5
Honduras	34	Y	61/58		50	73	50	87	1.5	810	7.6
Mexico	53	Y	92/88	54/53	94	45	77	93	1.1	1,830	4.5
Nicaragua	27	Y		29/58	41	83	49	65	1.1	830	12.7
Panama	58	Y	89/88	56/63	89	80	83	93	1.1	2,240	10.9
South America (8)											
Argentina		Y	96/95	69/78		71	56	96	0.1	2,390	3.3
Bolivia	26	N	84/65	40/35	36	63	44	95	0.8	580	2.8
Brazil	65	Y	79/76	32/41	95		78	111	0.5	2,020	4.7
Chile		Y	97/96	72/76	98	97	94	108	0.3	1,310	7.3
Colombia	64	Y	82/82	55/56	51	60	92	101	1.7	1,240	3.6
Ecuador	44	Y	85/80	55/57	27	62	58	92	1.3	1,040	4.7
Guyana	31	Y	97/95		96	89	77	69	0.5		12.6
Paraguay	44	Y	91/85	30/30	22	61	29	117	0.8	990	1.8
Peru	45	Y	91/87	68/61	44	75	55	103	2.1	1,470	2.6
Uruguay		Y			97	82	85	102	0.3	2,190	4.1
Venezuela	49	Y	88/85	48/59	82		90	92	0.6	3,230	9.3
Northern America (9)											
Canada	73	Y		104/104	99			93		15,160	14.0
United States of America	68	Y		98/99	99			85		18,530	9.8
Asia											
Eastern Asia (10)											
China	74	Y	82/56	50/37				127	7.6	290	4.1
Hong Kong	72		95/81	71/76	92			54	10.6	8,070	
Japan	64	Y		95/97	100			98	2.0	15,760	9.9
Korea											
Korea, Dem. People's Rep. of		Y			65			109	3.2		
Korea, Republic of		Y	96/88	91/86	70	93	77	100	5.2	2,690	5.2
Mongolia		N	95/90	88/96	99			95	0.5		
Southeastern Asia (11)											
Cambodia		N	85/65	45/20	47	53	3	141	1.8		
Indonesia	47	Y	83/65		31	80	38	119	3.8	450	4.2
Lao People's Dem. Rep.		N	92/76	23/16		67	21	110	3.4	170	
Malaysia	51	Y	81/66	59/59	82		84	138	1.2	1,810	9.7
Myanmar		Y			57	33	27	124	1.9		3.1
Singapore	74	Y	93/79	70/73	100	100	100	83	7.7	7,940	6.4
Thailand	67	Y	94/88		40	70	64	104	1.7	850	5.4
Viet Nam		Y	88/89	44/41	99	80	46	114	5.7		
Southern Asia (12)											
Afghanistan		Y	39/8	10/5	8	29	21		1.2		
Bangladesh	25	Y	43/22	24/11	5	45	46	88	8.1	160	2.8
Bhutan		Y		7/2	7	65		118	13.0	150	
India	34	Y	57/29	50/27	33		57	112	2.9	300	4.3
Iran, Islamic Rep.		Y	62/39	57/39		78	76	89	0.9		5.3
Nepal	13	Y	39/12	35/11	6		29	102	6.7	160	3.7
Pakistan	7	Y	40/19	26/11	24	55	44	104	2.7	350	2.4
Sri Lanka	62	Y	91/83	63/69	87	93	40	88	4.6	400	4.9

	Family Planning		Adult literacy	Secondary school enrolment	Births attended by health	Access to health	Access to safe	Food production per	Agricultural pop. per ha.	GNP per	Health/ education
	Users (%)	Government support[11]	1985 M/F	1980-1988 M/F	worker (%) 1983-1988	services (%) 1985-1987	water (%) 1985-1987	capita (1979-1981=100)	of arable land 1986	capita (US$) 1987	as % of GNP
Western Asia (13)											
Democratic Yemen		Y	59/25	26/11	10	30	54	86	4.7	420	8.0
Iraq		N	90/87	60/38	50	93	87	102	0.7		4.5
Israel		Y	97/93	79/87	100			100	0.5	6,800	9.4
Jordan	26	Y	87/63	80/78	83	97	96	117	0.6	1,560	7.0
Kuwait		N	76/63	86/79	99	100			7.5	14,610	7.5
Lebanon		Y	86/69	57/56			93		1.0		
Oman		N	47/12	46/29	60	91	53		12.0	5,810	9.9
Saudi Arabia		N	71/31	52/35	74	97	97	236	4.4	6,200	14.6
Syrian Arab Rep.	19	Y	76/43	69/48	37	76	76	95	0.5	1,640	6.5
Turkey	51	Y	86/62	57/43	78		78	98	0.9	1,210	2.6
United Arab Emirates		N		55/66	96	90			2.4	15,830	3.2
Yemen	1	Y	42/7	46/6	12	35	42	105	3.4	590	6.2
Europe											
Eastern Europe											
Bulgaria	76	Y		75/76	100			102	0.3		7.6
Czechoslovakia	95	Y		27/49	100			122	0.3		7.8
German Dem. Rep. (14)		Y		79/76	99			117	0.3		6.4
Hungary	73	Y		69/70	99			106	0.3	2,240	7.0
Poland	75	Y		78/82	100			102	0.5	1,930	8.5
Romania	58	N		79/80	100			110	0.5		3.7
Northern Europe (15)											
Denmark	63	Y		106/107	100			119	0.1	14,930	12.8
Finland	80	Y		98/114	100			99	0.2	14,470	11.9
Ireland		N		91/101				98	0.7	6,120	14.7
Norway	71	N		92/97	100			109	0.3	17,190	12.3
Sweden	78	Y		90/92	100			92	0.1	15,550	15.6
United Kingdom	83	Y		82/85	100			105	0.2	10,420	10.6
Southern Europe (16)											
Albania		N		80/71				95			
Greece		Y	97/88	89/80	97			100	0.6	4,020	6.0
Italy	78	Y	98/96		100			98	0.4	10,350	8.5
Portugal	66	Y	89/80	47/56	87			102	0.8	2,830	10.0
Spain	59	Y	97/92	97/10[7]	96			110	0.2	6,010	7.5
Yugoslavia	55	Y	97/86	82/79	86			98	0.7	2,480	8.1
Western Europe (17)											
Austria	71	Y		78/81				104	0.3	11,980	11.3
Belgium	81	Y		99/100	100			116	0.3	11,480	11.2
France	78	Y		89/96	99			100	0.2	12,790	12.5
Germany, Fed. Rep. of (14)	77	Y		96/92	100			112	0.3	14,400	10.8
Netherlands	72	Y		105/103	100			111	0.7	11,860	14.1
Switzerland	71	N			99			108	0.7	21,330	11.6
Oceania											
Australia-New Zealand											
Australia (18)		Y		96/99	99			97		11,100	10.2
New Zealand	69	Y		84/86	99			111	0.6	7,750	10.4
Melanesia (19)											
Papua New Guinea		Y	55/35	16/9	34		27	97	6.6	700	8.9
USSR		Y			98			109	0.2		8.4

POPULATION AND SOCIAL INDICATORS

Country	Population in thousands 1990	Population in thousands 2025	Growth rate (%) 1990-95	Life expectancy 1990	Infant mortality per 1,000 1990	GNP per capita (US$) 1987	Per cent urban 1990	Urban growth rate (%) 1990-95	Adult literacy M/F 1990-1995	Government support for family planning 1988[11]
Bahrain	515	991	3.1	71	22	8,510	27	5.1	79/64	Y
Barbados	261	346	0.8	74	10	5,350	80	3.5		Y
Cape Verde	379	886	3.1	63	56	500	63	2.5	61/39	Y
Comoros	518	1,323	3.1	54	71	370	64	3.5	56/40	Y
Cyprus	700	904	0.9	76	9	5,200	33	6.9		Y
Djibouti	406	1,069	3.0	49	111	480	61	4.8	15/9	N
East Timor	736	1,144	1.9	45	149		22	5.1		
Equatorial Guinea	440	990	2.4	48	117	180	30	4.6		N
Fiji	748	953	1.2	71	23	1,570	44	2.1	90/81	Y
Gambia	858	1,850	2.7	45	131	220	48	1.7	36/15	Y
Guadeloupe	340	421	0.4	74	11		74	1.1		
Guinea-Bissau	987	2,164	2.3	47	121	160	47	2.7	46/17	Y
Iceland	253	310	0.8	78	5	16,330	13	4.8		Y
Luxembourg	367	348	0.0	75	8	18,550	82	3.4		N
Malta	352	388	0.4	73	9	4,190	52	2.2		Y
Martinique	331	410	0.4	75	11		89	3.6		
Micronesia (20)	379	533	1.5	70	25		90	1.0		Y
Polynesia (21)	555	763	1.4	72	21		87	0.7		Y
Qatar	367	863	3.4	70	25	12,510	84	0.5	51/51	N
Reunion	594	875	1.5	72	12		44	2.6		
Suriname	403	627	1.5	70	25	2,270	50	3.0	90/90	Y
Swaziland	789	2,205	3.4	57	107	700	37	2.6	70/66	Y

NOTES:

Data for small countries or areas, generally those with population of 300,000 or less in 1985, are not given in the first two tables separately. They have been included in regional population figures.

(•) More Developed Regions comprise Northern America, Japan, all regions of Europe, Australia-New Zealand and Union of Soviet Socialist Republics.
(+) Less Developed Regions comprise all regions of Africa, all regions of Latin America, all regions of Asia excluding Japan, Melanesia, Micronesia and Polynesia.

(1) Including British Indian Ocean Territory and Seychelles.
(2) Including Agalesa, Rodrigues and St. Brandon.
(3) Including Sao Tome and Principe.
(4) Including Western Sahara.
(5) Including St. Helena.
(6) Including Anguilla, Antigua, Bahamas, British Virgin Islands, Cayman Islands, Dominica, Grenada, Montserrat, Netherlands Antilles, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Turks and Caicos Islands and United States Virgin Islands.
(7) Including Belize.
(8) Including Falkland Islands (Malvinas) and French Guiana.
(9) Including Bermuda, Greenland and St. Pierre and Miquelon.
(10) Including Macau.
(11) Including Brunei Darussalam.
(12) Including Maldives.
(13) Including Gaza Strip (Palestine).
(14) The data which relate to the Federal Republic of Germany and the German Democratic Republic include the relevant data relating to Berlin for which separate data have not been supplied. This is without prejudice to any question of status which may be involved.
(15) Including Channel Islands, Faeroe Islands and Isle of Man.
(16) Including Andorra, Gibraltar, Holy See and San Marino.
(17) Including Liechtenstein and Monaco.
(18) Including Cocos (Keeling) Islands, Christmas Island, and Norfolk Island.
(19) Including new Caledonia, Solomon Islands and Vanuatu.
(20) Comprising Guam, Kiribati (which also Includes Canton and Enderbury Islands), Nauru, Pacific Islands (comprising the Caroline Mariana, and Marshall Islands), Johnston Island, Midway Islands and Wake Islands.
(21) comprising American Samoa, Cook Islands, French Polynesia, Niue, Pitcairn, Samoa, Tuvalu, Tokelau, Tonga, and Wallis and Futuna Islands.

† Government appraisal of population growth: L = too low; S = satisfactory; H = too high.
†† Government support for family planning (FP): Y = government provides direct or indirect support; N = no support provided or access limited.

SOURCES:

Adult literacy rates: United Nations Educational, Scientific and Cultural Organization (UNESCO)
School enrolment: United Nations Educational, Scientific and Cultural Organization (UNESCO)
Percentage of births attended by trained health personnel: World Health Organization (WHO)
Percentage of population with access to health services: United Nations Childrens Fund (UNICEF)
Percentage of population with access to safe drinking water: World Health Organization (WHO)
Food production per capita: Food and Agriculture Organization of the United Nations (FAO)
Agricultural population per hectare of arable land: Food and Agriculture Organization of the United Nations (FAO)
GNP per capita: World Bank
Government expenditures on health and education as percentage of GNP: Ruth Leger Sivard, *World Military and Social Expenditures 1989*
All other statistics are provided by the United Nations Population Division.

UNFPA

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THE STATE OF WORLD POPULATION 1990

Press summary

Please see visuals 1, 2, 3, 5, 9, 10, 11, 12.

Choices for a new century

World population, now 5.3 billion, will increase by another billion (one thousand million) people during the 1990s. During the next century it will probably double and could triple, says this year's State of World Population Report from the United Nations Population Fund (UNFPA). The biggest increase will be in the poorest countries; consequences for the environment and for development prospects will be serious. They could be catastrophic.

"The next ten years will decide the shape of the 21st century. They may decide the future of the earth as a habitation for humans," said Dr. Nafis Sadik, UNFPA Executive Director.

The 1990s will see greater increases in human numbers than any decade in history, according to the the Report. World

population is increasing by three people every second - about a quarter of a million each day. Between 90 and 100 million people - roughly equivalent to the current population of eastern Europe or central America - will be added every year during the 1990s.

World population growth continues to be grossly out of balance, with more than 90 per cent of the growth coming in the developing regions. By and large, the biggest increases will be in the poorest countries - those by definition least equipped to meet the needs of the new arrivals and invest in the future.

Just a few years ago, in 1984, it seemed as if the rate of population growth was slowing everywhere except Africa and parts of South Asia. The world's population seemed set to stabilize around 10.2 billion towards the end of the next century, the Report continues.

Today, the situation looks less promising. Progress in reducing birth rates has been slower than expected. According to the latest United Nations projections, the world has overshot the marker points of the 1984 'most likely' medium projection, and is now on course for an eventual total that will be closer to 11 billion than 10 billion.

In fifteen countries - thirteen of them in Africa - birthrates actually rose between 1960-65 and 1980-85. In another 23 the birth rate fell by less than two per cent.

If fertility reductions continue to be slower than projected, the mark could be missed yet again. In that case the world could be headed towards an eventual total of up to 14 billion people.

"Of the present 5.3 billion people on earth, about a billion live in poverty. Can the earth meet even modest aspirations for this 'bottom billion', let alone those of the better-off and their descendants, without irreparable damage to its life-support systems?" asks the Report.

"Already our impact has been sufficient to degrade the soils of millions of hectares, to threaten the rain forests and the thousands of species they harbour, to thin the ozone layer, and to initiate a global warming whose full consequences cannot yet be calculated.

"By far the largest share of resources used and waste created is currently the responsibility of the 'top billion' people, those in industrialized countries. These are the countries overwhelmingly responsible for damage to the ozone layer and acidification, as well as for roughly two-thirds of global warming", the Report states.

"However, in developing countries the combination of poverty and population growth among the 'bottom billion' is damaging the environment, notably through deforestation and land degradation. Deforestation is a prime source of carbon dioxide,

one of the principal 'greenhouse gases' responsible for global warming. Rice paddies and domestic cattle - food suppliers for two billion people in developing countries - are also major producers of methane, another of the greenhouse gases."

The Report says that developing countries are also doing their best to increase their share of industrial production and consumption. Their share of industrial pollution is rising, and will continue to rise.

Developed or developing, the more people the more pollution: at any level of development larger numbers consume more resources and produce more waste, according to the Report.

The Report states that redressing the balance demands action in three major areas:

- **firstly**, a shift to cleaner technologies, energy efficiency and resource conservation by all countries, but especially the richer quarter of the world's population;
- **secondly**, a direct and all-out attack on poverty itself;
- **thirdly**, it demands reductions in overall rates of population growth; "reducing population growth, especially in the countries with the highest rates of growth, will be a crucial part of any strategy of sustainable development," the Report says.

"The quality of human life is inseparable from the quality of the environment. It is increasingly clear that both are inseparable from the question of human numbers and concentrations. One of the clearest lessons of the last two decades of work in population is that investments in human resource development - for example, improvements in women's status, access to education, health and the means of family planning - not only improve the quality of life, but are also the best and quickest way to reduce the population growth rates. By opening up options in the present, they open up options for the future."

The Report argues that investment in human resources provides a firm base for rapid economic development, could have a significant impact on the environment crisis and is essential for global security. However, in the past it has often commanded a lower priority than industry, agriculture, or military expenditure.

"It is time for a new scale of priorities: there is no other sphere of development where investment can make such a large contribution to the options and quality of life, both in the present and in the future.

"At the start of the 1990s the choice must be to act decisively to slow population growth, attack poverty and protect the environment. The alternative is to hand on to our children a poisoned inheritance," the Report says.

UNFPA

NEWS FEATURE

Please see visuals 1, 2, 5, 9, 10

Pushing the limits

World population is growing faster than ever. And the earth's dirty and damaged environment is over-heating. How much further can the human race push its luck? asks this year's State of World Population Report from the United Nations Population Fund. Paul Harrison explains how better family planning can reduce the effects of global warming and keep open the options for the future.

The 1990s will see the fastest growth in human numbers in all history. At present the world's population is increasing by three people a second - about a quarter of a million every day. Some 96 million people - an extra Thailand and Korea - will be added every year; a whole extra China over the decade.

Just a few years ago, it seemed as if the rate of growth was slowing almost everywhere. The world's population seemed set to stabilize around 10.2 billion towards the end of the next century.

The situation now looks less promising, as the State of World Population 1990, just published by the United Nations Population Fund, reveals.

Progress in reducing birth rates was slower than expected. Countries which had substantially reduced their birth rates in

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the late 1960s and early 1970s, stalled in their progress. And in some countries birth rates actually *rose* in the two decades up to 1980-85.

These setbacks forced the United Nations to reassess the population outlook. In 1986, it projected that the world would house 6,122 million people by the end of the century. Now it has had to raise that figure to 6,251 million - an extra Japan added to the total. Looking further ahead, to 2025, the UN now expects 8,467 people - 200 million more than it predicted five years ago.

The world is now on course for reaching a stable population, sometime towards the end of the next century, of closer to 11 billion than 10 billion. Indeed, if future progress in cutting birth rates is not achieved we would be headed towards a total of up to 14 billion people.

This is serious - especially in view of a world food crisis which is creeping upon us almost unnoticed. During the 1980s, food production has lost ground to population in many countries. In Africa, 25 countries out of 43 experienced a drop in per capita cereal production. And Latin America's performance was even worse: 17 countries out of 23 suffered a decline.

Today, the global food situation looks shakier than at any time in the past 15 years. We can no longer rely on automatic harvest increases every year. World food security now depends on the performance of North American farmers, and that depends on a global weather system that is increasingly unstable. Following the drought-hit US harvest of 1988, world cereal stocks dropped from 24 per cent of global consumption in 1986-87 to a dangerously low 17 per cent. Meanwhile, many countries are running out of reserves of good cropland. The best and most accessible land is already in use. As a result the area of land available per person declined at the rate of 1.9 per cent during the 1980s.

The human race now appears to be pushing against new limits of growth. Our numbers, our lifestyles and our technologies have reached the stage where destruction of the environment has reached dangerous levels. We are sawing through the branch that is holding us and if we carry on as before, it may break and bring us crashing down with it.

Not everyone admits that population plays any role in environmental damage. Soil erosion is often blamed on the poverty of the South, while damage to tropical forests, oceans and climate are laid at the door of affluence in the North.

The real situation is more complex. Two factors may decide how much damage we do per person to our environment. One is our lifestyle and how much we consume. The other is the kind of technology we use and how much damage or waste it creates. But population decides how many persons there are - and this is what fixes the *total* level of damage.

Population growth is responsible for a far greater share of deforestation, for example, than commercial logging or ranching. Much of the forest cleared in developing countries becomes cropland for growing populations that cannot be accommodated on existing farmland. These populations may be responsible for more than 85 per cent of the loss of forest cover.

Of course poverty is partly to blame for soil erosion: poor peasants cannot afford fertilizers or the conservation measures needed for protecting the soil. But population growth has its own effect, forcing farmers to exhaust the soil, or to use marginal land. And unchecked soil erosion could cause a drop of nearly 30 per cent in food production from rain-fed cropland. It is, clearly, a direct threat to human life in developing countries.

Climate change is a threat to human life across the globe. The nature of that threat is now well known. Most projections expect that by the middle of the next century average world temperatures will rise by up to 2.8 degrees Celsius. No previous climate shift in earth history has happened so swiftly.

As ecological zones shift, the area of forest cover will decline. Sea-level rises could lead to disastrous flooding of many ports and deltas, displacing, for example, as much as 10 per cent of Bangladesh's population or 16 per cent of Egypt's. Rainfall in mid-latitudes may decrease, hitting the world's chief source of surplus grain, the North American mid-west.

So far the lion's share of the blame for global warming lies with the developed countries. The average developed world resident adds around 3.2 tonnes of carbon dioxide (the gas

responsible for about half of global warming) each year to the atmosphere, almost four times the level added by each Third World dweller.

But this situation has been changing. The South's emissions of greenhouse gases has been growing. Annual carbon dioxide output from trees burnt in deforestation almost trebled between 1950 and 1980-85. Emissions from industrial sources in the Third World rose by almost 16 times.

As developing countries industrialize, lifestyles and technologies will come to resemble those of the North. The world car population, for example, is projected to grow from its present 400 million to 700 million over the next twenty years - twice as fast as the human population. Much of that growth will occur in the South which currently owns only 12 per cent of the world car fleet. South Korea alone adds 600,000 cars to its roads every year. If these trends and population growth continue, developing countries will be emitting 16.5 billion tonnes of carbon annually by 2025 - over four times as much as developed countries today.

Clearly many lines of action are called for to save the environment for future generations. Changes in lifestyles will be needed: reductions in levels of consumption - and wastage - in the North; increases in recycling. Changes in technology will include improvements in energy efficiency and efforts to conserve soil. There must be a halting and a reversal of deforestation.

But population is part of every equation. And reducing population growth can make a very considerable contribution.

The United Nations has made a "low" projection of future population, based on what would happen if birth rates declined faster. On this projection there would be only 7,590 million people in the world by the year 2025 - 876 million fewer than the more likely medium projection.

If this low projection could be achieved, rather than the medium one, it would have the same impact on cutting down carbon dioxide output as halving deforestation. It would reduce pressure on soil and water resources and make it easier to provide improved education and health services.

And it can be done. Many countries, including Tunisia, Sri

Lanka, Mexico or Costa Rica, have achieved the kind of birth-rate drops that would be required over the next three decades. A few, like Cuba, or China, have achieved as much in half the time.

To bring this off will demand a new priority for family planning and population programmes to get people interested in smaller families. This must involve improvements in health and education and the status of women.

All of these efforts increase the options of present generations and help to reduce present poverty. Equally important, they keep open options for future generations.

UNFPA

NEWS FEATURE

Please see visuals 3, 6, 11

Women at the centre

Unless women have control over their own lives and fertility, family planning goals will not be reached - and environmental damage will hit danger level, says this year's State of World Population Report from the United Nations Population Fund. But there are major obstacles that get between women and their human rights.

Sandra Necchi talks to a woman in Brazil who has planned her life and family - on her own terms - and Elizabeth Obadina reports on dramatic changes in rural Nigeria.

A woman's choice

Marilene de Freitas is a strong-minded woman living in the Baixada Fluminense, a working-class suburb of Rio de Janeiro. She has been a hotel receptionist and a demonstrator of products in a department store.

At the age of 35, however, she finds it harder to get employment. Brazilian employers are partial to younger - and childless - women. Many women her age have the supposed security of marriage. Marilene however has deliberately chosen to remain a single mother, bringing up her two sons, Denis, 11 and Marcos, four. And she has started up a group of neighbourhood women who meet to discuss the highly controversial issue of pregnancy, sex, and birth control.

Marilene appears conventional. She likes to dress well and

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never leaves the house without make-up. But looks can deceive. Marilene has a frankness and originality that often gets her into trouble - especially with her family, who view her as something of a rebel.

"My parents had always assumed that I would marry and have several children," she explains. "My mother had nine. Her mother had ten. At 17, I saw three girlfriends marry and start large families. By the time I was 20, my sister and all my friends were married or were about to be married. Today, all of them have at least four children and a few have more. My cousin, for example, has nine children. She is younger than I, but looks like 50. One day she told me why she had had so many children. 'To keep my husband,' she said. "'I have nothing else in life'."

At this point Marilene's voice rises in irritation. "I don't like to see her very often because she makes me angry. I know I should have more understanding, but I hate this ignorance. I grew up in it. I knew nothing about sex until the first time I was with a man. It took a long time to forgive my mother for never telling me."

She pauses, runs her painted fingernails through her dark curling hair. "I always loved children, of course. But early in life I knew I wanted to be more than a mother. I wanted time for myself, to work, to learn about the world, to enjoy life as I could.

"Anyway, I got to learn about family planning after seeing commercials on television a few years ago. Then I heard that they were running a free class at the women's health centre in Rio, and decided to go. My father said that if I went I would become as bad as a prostitute. I told him that he had raised me to be ignorant and I had to undo the damage he had done. He slapped my face. But, I went anyway."

"At the class we learned about different methods of birth control. I learned that the women who had most children were the poorest and least educated. And I learned about the rate of illness and death among women in Brazil who knew little about contraception or health care during pregnancy. It was then that I decided to try and start a group here with my neighbours where we could at least talk about these issues."

Marilene's independence has its price. She cannot live in the

more spacious family home - as her brothers do. Instead she shares cramped quarters in a shanty-town dwelling with her children.

Four-year-old Marcos comes into the room - and then goes out again to play with his brother and their pet rabbit in the yard. "My first son was not planned," explains Marilene. "But my second was. Raising children is never easy when you are poor. But as I am single and there are only two of them I can give them plenty of care and attention. My boys do not have distended stomachs, bad teeth or diarrhea like so many children around here.

"My family and my friends still tell me I should marry so my two boys can have a father and that I should have a daughter. I reply that *they* should use birth-control, that they should think of the costs, not just financial but physical and psychological of raising so many children. But people are so fixed in their attitudes. A man who lives near me, an old boyfriend, wants to live with me and is determined to have a child with me. Last week another man - someone I think of as a friend only - asked me to marry him so that we could have children together. I told him two was enough for me. He said that was why everyone thought I was 'loose'."

She leans forward, her green eyes brightening. "The truth is, I am really better off as I am - with a small family. I have continued to work at the women's centre and they sometimes pay me to work there as a teacher. They urged me to complete my high school education and I finished last year. I see my life as independent - I raise my children as I wish. I now want to take a computer course and am arranging childcare for my boys so that I can study.

"I used to believe that it necessary to have a husband if you wanted children. I don't believe this anymore. If I were married it would be the same as raising another child. I don't believe in the ability of any man to guarantee my security or my children's security. I have managed better than many of my childhood friends and certainly better than my mother who has so often told me how she would cry all alone each time she learned she was pregnant. Basically it is an issue of control. I do not have much in this world, I but I do have more control over my life than many other women."

by Sandra Necchi

Falling barriers

Things are moving fast for women like Euphemia Okonkwo, a 25-year-old farmer and orange-seller of Udi village just outside Enugu, in south-eastern Nigeria.

Encouraged by her husband, a carpenter, as well as her parents-in-law and a friendly neighbour, Euphemia recently made her first visit to the Government's family planning clinic. Her friend had been using the injectable "Depo-Provera" contraceptive and had persuaded Euphemia try it. The three-monthly injection, was, she said, the most convenient and least obtrusive of family planning methods.

But there was the matter of Euphemia's Catholic conscience. So she visited a priest - and to her surprise found herself absolved from sin. "The reverend father said it didn't really matter. That I should say some prayers on my rosary and look after my family well."

Euphemia was fortunate to have all the barriers to family planning fall down before her. A short while ago her decision would not have been acceptable. For a start, she has only one son in a culture which prizes boys above girls. Second, she has just three children in a country which remembers that at Independence in 1960 a third of all under-fives died. And third, as an Igbo women she would traditionally be expected to want to bear 10 or 12 children - a feat that would be rewarded by the slaughter of a cow, a big party and entry into an elite association of matrons.

But Nigerians are changing - and the changes are occuring in many parts of their vast and culturally diverse nation. Government policies are partly to thank.

Immunization programmes have been boosted from five per cent coverage in 1984 to 60 per cent in 1989. By 1985, 82 per cent of under fives survived. It is now no longer necessary to have a great many children as a form of "insurance". Mothers can bear children today and know they have a fair chance of surviving.

But as a result, population is booming. Nigeria, home to one in five Africans, will by the year 2030 contain 300 million

people, according to the 1990 State of World Population Report, making it the world's third most populous country.

And this will create major problems. "If the situation is left unchecked," says Nigeria's Health Minister, Professor Olikoye Ransome Kuti, "the population of the African continent could double in 17 years time with an attendant increased demand for food, housing, health services, schools and employment which African governments would find very difficult, if not impossible, to cope with - especially as most African countries have the lowest economic growth rates in the world."

The traditional arch-enemy of Nigerian family planners has been the Nigerian man. But today many men are taking the family planning initiative - though usually on behalf of their wives. The reasons are usually economic. Average annual incomes slumped from US $860 in 1982 to US $370 US dollars in 1989. Inflation is officially running at 51 per cent, and hardship - with the prospect of worse to come - has changed men's attitudes, even in the rural areas where 70 per cent of the population lives.

Take Councillor Nwandugo Nwovu, for example - the amiable patriarch of Ndiakparata, a scattered Igbo farming village of 4,500 people in Anambra state. He married six wives and fathered 50 children, of whom 15 died. "I inherited a quarter of my father's land about five hectares - enough to grow rice, yams and cassava for sale and to feed ourselves. But there's not enough water to grow vegetables or keep stock.

"I didn't think about family planning before because there was always enough land to support us. Now I see that there will not be enough land for my children to live the same way. Some things should be easier - we should have a Government borehole so the women will not have to fetch water. And the children are all attending primary school. But nowadays I advise my grandchildren not to have many babies. My son, who got a scholarship to go to University, gives the same advice."

But for women in small villages, where large families are still the norm, the pressure to conform remains powerful. If popular opinion condemns family planning, most women will toe the line. And negative rumours - however unfounded - about government health campaigns can spread easily. For example, the 1988 immunization programme was nearly boycotted in Kano State when rumour spread that the tetanus vaccination for pregnant

women was an injectable contraceptive. The rumour was started by Muslim fundamentalists and it took the entire Islamic hierarchy and all the traditional rulers to quench it.

Traditional rulers have to be co-opted as advocates for government welfare programmes. "When we enter a village we greet the husbands through the chief. We present them with kola nuts and wine and explain our mission," says family planning officer Mrs Florence Anyim. "We have to go through the men otherwise there would be an uproar. But in the past year men's attitudes have changed because of the huge amount of government propaganda - we even had a radio soap opera dealing with the issue here."

But there remains the problem of reaching women independently of their husbands - so that they can make their own decisions. And of course, there is the problem of having enough government resources to get contraception out to willing villagers.

by Elizabeth Obadina

UNFPA NEWS FEATURE

Please see visuals 1, 4, 7

Men for a change

Men rarely share responsibility for family planning. And male decision-makers tend to give little thought to issues like maternal and infant mortality. But if men do not accept that family planning plays a major role in the survival of our planet, we are all heading for trouble, warns the 1990 State of World Population Report from the United Nations Population Fund. Mark Timm reports from Thailand.

Thai men have long played a central role in their country's family planning effort - as obstacles.

During the 1930s and 1940s in Thailand, under the dictatorship of Plaek Pibulsonkhram, awards were given out on Mother's Day to women with large families. These pro-natalist policies, which held sway for decades, were driven by the notion that a large population was needed to build up military strength.

Only in the early 1970s did things change. The Thai government undertook to reduce the population growth rate by 0.5 percentage points a year. It now became clear that large population growth was slowing down development, and that poverty might be alleviated by reducing family size.

Thousands of village family planning volunteers were mobilized. And the campaign worked: birth-rates more than halved during the course of the next 15 years.

Today, nearly 70 per cent of married couples practice family planning and 95 per cent of couples do not want more than two children. Most cite economic reasons for their choice.

This success has made Thailand a family planning model for

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other developing countries. But it is women who can take the credit. Men remain a bastion of traditional resistance. In 1987, for example, 68 per cent of women were practising some form of contraception compared with only seven per cent of men.

The figures are skewed towards women - and not only in Thailand - partly because most contraceptive methods are designed for women. Equally important, however, is attitude. Whereas boys are coddled by most Thai parents, girls are taught from a young age to take responsibility. As adults, too, there is little incentive for Thai males to accept responsibility for family planning. Many continue to view family planning as exclusively a woman's concern.

When Thai girls grow up, however, they play a more active economic role in the family and in society as a whole than do their counterparts in many other societies. The main thing Thailand's family planning effort has going for it, according to its chief architect Mechai Viravaidhya, is "the relatively strong personality of the Thai women".

"The men don't get in the way of women. That's probably been their most important role," says Mechai. "Even if there were a pill available to men, the women would still use their own pill because they wouldn't trust the men to use theirs"

It's tempting simply to write off family planning campaigns aimed at men and to direct resources at women, where they can be more effective. But this year's State of World Population Report, just released by the United Nations Population Fund, states quite clearly that more men must get involved in family planning if population growth is not to overwhelm the earth's resources. For world population to stabilize at 11 billion by the end of the next century, contraceptive use will have to increase worldwide by 64 per cent within the next 10 years. This will only be possible if men take a more responsible attitude.

Even Thailand, with its dramatically reduced birth-rate, has an extra one million new mouths to feed each year. And the number of women of reproductive age will increase from seven million to ten million over the next few years.

However, Thai family planning agencies already face a shortage of contraceptive materials and other resources. This is why the cheapest and most reliable form of contraception of

all - the vasectomy or male sterilization - is being promoted. Vasectomy takes 15 minutes, costs half as much as female sterilization - and is less likely to cause side-effects.

Mechai has already given Thailand a certain notoriety by staging mass vasectomy fairs each year on the birthday of Thailand's king. In 1987, a record was set when more than 2,000 men showed up at a field next to the royal palace for the free operation.

Despite the fanfare, however, far fewer men than women opt to be sterilized. The total number of men sterilized in 1987 was 16,447. The figure for women that same year was close to 140,000.

"Men don't do it (have a vasectomy) because they're not the ones to get pregnant," says Patama Bhiromrut, the Ministry of Public Health's senior family planning promotion specialist.

Communication is another problem. Women can find out about female sterilization during pregnancy from medical personnel or village midwives. But men retain their traditional attitudes and superstitions. A recent survey in Thailand's north-east showed that men were worried about rumored links between the operation and impotence, poor health and work disability.

Now the Thai Association for Voluntary Sterilization is seeking to remove some of these prejudices and to enlighten men. One thing they have discovered is that men need support to go ahead with the operation - and not have second thoughts about it later. Most who had the operation were influenced by people they respected or trusted, like community leaders or friends or entertainers who had had the operation themselves. "Men should be motivated to like birth control," the survey concludes.

by Mark Timm

UNFPA

NEWS FEATURE

Please see visuals 1, 2, 8, 12

A critical balance

With growing environmental problems and poor family planning services, eastern Europe's problems mirror those of the developing world. Unless the region can clean up its act, there will be little chance of balancing its future development with the needs of its people. Don Hinrichsen reports.

On the edge of the charming university town of Pecs, in Southern Hungary, two huge thermal-power stations stand shoulder to shoulder. Both burn polluting brown coal to produce electricity for this energy-hungry part of the country. Yet the contrast between the two plants is stark. The main stack on one plant belches out clouds of black smoke; the stack of the other emits next to nothing. The clean plant has been fitted with an efficient Swiss filter, which removes most particles and dust; the other has no pollution controls at all.

Hungary, like the rest of Eastern Europe, finds itself in the middle of convulsive changes. Behind the dramatic and sudden political, economic and social shifts sweeping through Middle Europe looms the grim legacy of 40 years of resource exploitation and environmental neglect.

The region is scarred by ruined forests and watersheds eaten away by acid rain and other pollutants; rivers and lakes fouled almost beyond recovery by untreated municipal and industrial wastes; croplands contaminated with agricultural poisons and overdoses of fertilizers; and crumbling cities besieged by a virulent assortment of airborne chemicals generated by outdated smokestack industries and vehicles. Worse still, the health of millions of East Europeans has been imperilled by the neglect of basic environmental safeguards in the rush towards industrial growth.

"Where does the destruction of our natural environment end?"

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laments a member of Poland's Ecological Club. "We are killing our heritage and pillaging our children's future."

The evidence can be seen all over the region.

• The health of 2.6 million people in the Silesian Industrial zone in southwest Poland is endangered by industrial filth. The queen of Polish rivers, the Vistula, is so chock full of pollutants that its waters are unfit even for industrial use along 80 per cent of its total length.

• In Hungary every seventeenth death and every twenty-fourth disability is attributed directly or indirectly to air pollution.

• In the Czechoslovakian town of Bratislava, cancers have risen by a third, heart complaints by 40 per cent, infant mortality by two-thirds and miscarriages by half since 1970, thanks to deadly air pollutants from nearby industries.

• In just one year, 1986, over 88,000 children and 63,000 adults in the Romanian town of Giurgiu were treated for lung diseases brought on by rampant air pollution.

Birth rates in east Europe have stagnated for 30 years, despite a widespread lack of family planning services. Hungary's population is actually falling by about 7,000 a year, according to this year's State of World Population Report from the United Nations Population Fund.

Birth rates are low all over the industrialized world. But the explanation in affluent western Europe has been that children are expensive and parents have other things to do with their money. For east Europe, continued low birth rates might be an expression of deep pessimism about the future, a pessimism brought on partly by polluted air and poisoned water, vanishing forests and crumbling towns.

East Europe has a hard road ahead. In attempts to modernize their stumbling economies, environmentalists fear that the new governments in Poland, Hungary, Czechoslovakia, Bulgaria, Romania and East Germany may succumb to short-cuts, leaving environmental protection unattended.

Despite the proliferation of "green movements" in Eastern Europe over the past two years - there are now over 200 of them

in Poland alone - the majority remain outside the mainstream of political change. There is also a real possibility that green movements will be splintered by the political parties that are beginning to take from across the landscape of this region, points out Dr. Frank Carter, a geographer at University College, London. Hopefully some of them at least will be receptive to green pressure.

That may be over-optimistic. If the history of industrialization in the West is any yardstick, then eastern Europe is in for a period of restructuring that will still see high pollution levels and a further deterioration for the environment. It may well get worse before it gets better.

One green activist, who is determined not to let this happen is Janos Vargha, co-founder of the Danube Circle and one of Hungary's most outspoken environmentalists. He led the coalition of citizens' action committees and green groups which successfully halted the construction of two controversial dams on the Danube. "No matter which political party is in power in this country, they will have to listen to us," says Vargha.

Young people, angry at what their parents have wrought, may be the counter-balance to rapid - and polluting - industrial development. "We are insisting that economic growth be tempered by improvements in our health and living standards," insists a member of Czechoslovakia's Civic Forum.

Public health services, and family planning in particular, have been neglected. Abortion, the last resort in more fortunate countries, has become the substitute for family planning in much of eastern Europe. The situation was probably worst in Romania under the Ceausescu regime, where family planning was banned entirely. Women were examined regularly for signs of pregnancy and were forced to go through with it whether they wanted to or not. Elsewhere in east Europe, though family planning was legal, services were hard to find.

A first step in improving public health (and morale) would be to make basic family planning services as easily available as they are in western Europe.

Not that east Europe suffers from rampant population growth - quite the opposite. East Europe' s population problems are of a different kind. As economies are re-jigged, unemployment will be one of the by-products. At the same time, eastern Europe has a very high proportion of elderly people - almost a quarter of

the population are over 60 - and a shrinking base of working-age people to support them. But a curious side-effect of easier contraception might be to encourage a temporary "baby boom" as people confident of their power to prevent accidental pregnancies take the decision to have the children they want.

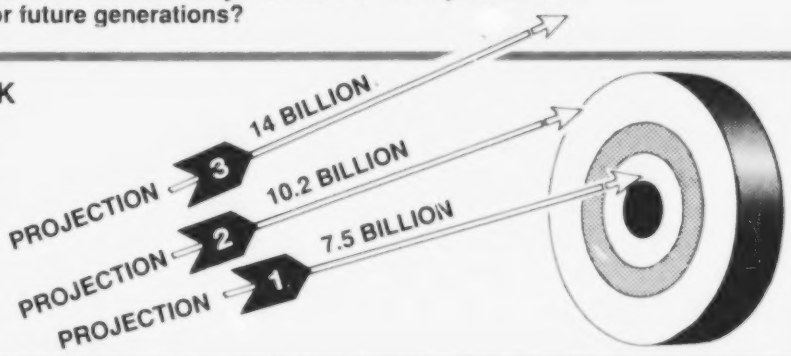
For the rest of the world eastern Europe's environmental and population problems might serve as an object lesson in how not to go about industrial development. Whatever their problems of population growth, developing countries must be hoping to find a better way to ease the pressure. In the meantime, they might do worse than observe what industrialization with total neglect of environmental safety can do to a nation's health.

A crucial balance

The world's population is growing at the rate of three people per second – a quarter of a million people a day. This is faster than ever before. But can the earth's damaged environment carry such numbers into the 1990s and beyond? How can we protect the planet and keep open the options for future generations?

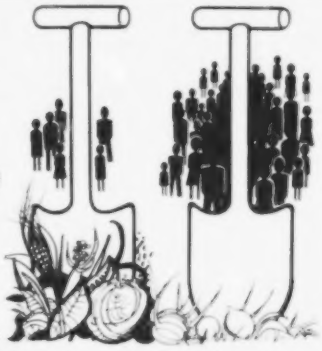
OVERSHOOTING THE MARK

There are now 5.3 billion people in the world. Recent predictions that global population would stabilize at around 10.2 billion now seem too low – 11 billion seems more likely. And if the use of family planning does not increase as expected the world could be headed for a total of 14 billion.



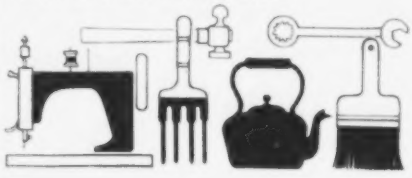
RACE AGAINST RESOURCES

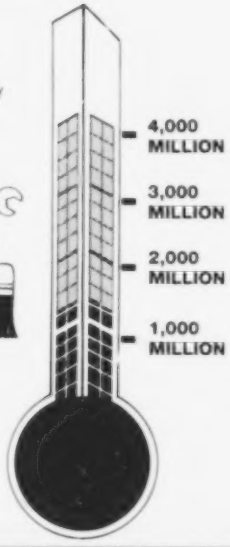
FOOD PRODUCTION is not keeping pace with population growth. Per capita food production fell in 25 out of 43 African countries in 1987-88 and in 17 out of 23 in Latin America.



LAND is the main source of livelihood for 60% of people in developing countries. But 36 countries with a population of 486 million may not be able to feed their people from their own lands by the year 2000.

JOBS are already in short supply. And 38 million new jobs will have to be created every year as the labour force in developing countries grows from 1,760 million today to more than 3,100 million by 2025.





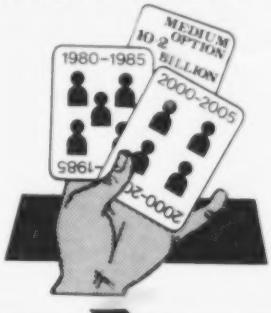
The rise of **MEGA-CITIES** leads to acute housing shortages, especially in developing countries. The world's urban population is set to increase from 1,384 million today to 4,050 million in 2025.

CHOICES

More family planning is one way of keeping open the options for the future. Reducing the rate of population growth gives the earth a better chance of sustaining its inhabitants through the 1990s – and beyond.

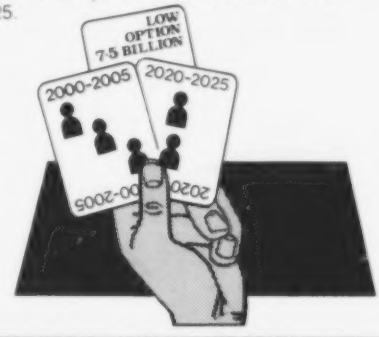
PROJECTION 2

To achieve the **MEDIUM PROJECTION** (10.2 billion) women in developing countries will have to reduce the number of children they bear from an average of 4.2 children (1980-85 figure) to 3.2 for the period 2000-05 and to 2.3 for 2020-25.



PROJECTION 1

To achieve the **LOW PROJECTION** (7.5 billion) women in developing countries would have to reduce the average number of children they bear to just 2.7 for the period 2000-2005 and 1.9 for 2020-25.



Graphics: Clive Offley

Overheated globe

Population growth and industrial pollution are doing increasing damage to the environment. If both continue to grow unchecked, the effects could be catastrophic.

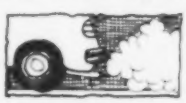
WARMING

- By the middle of the next century average world temperatures will rise by 1.5-2.8 degrees C. The world will be hotter than at any time during the previous 120,000 years.

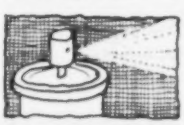
- Melting ice and thermal expansion may cause the sea level to rise by up to 70cms by the middle of the 21st century, causing serious flooding in low-lying areas. A 50-centimetre sea-level rise would displace 16 % of Egypt's population. Most of the Republic of the Maldives would disappear – the islands' highest point is less than 2 metres above sea level.

GREENHOUSE GASES

Five gases are responsible for the bulk of global warming. The faster population grows the hotter the world will get.



LOW LEVEL OZONE produced by car exhausts, accounts for 8% of global warming.



CHLOROFLUOROCARBONS account for 20% of warming. Used in refrigeration and air conditioning, aerosols, packaging.

NITROUS OXIDE emitted by humus decomposing rapidly after forest clearance and by the breakdown of nitrogen fertilizers.

METHANE accounts for perhaps 16% of the warming effect. Two-thirds of emissions are from human-made sources. Half of these come from decomposition in irrigated land and from the guts of livestock.

CARBON DIOXIDE is responsible for around half of global warming, caused by the burning of forests and fossil fuels.

Graphics : Clive Offley

THE GREAT POLLUTERS

Industrialized countries do most damage to the environment ...

- Industrialized countries account for 5/6 of world CFC use and 3/4 of fossil fuel use.
- The average person in the industrialized world adds 3.2 tonnes of carbon each year to the atmosphere – almost four times the level added by the average Third World resident.
- Pollution in the Katowice region of Poland has rendered inedible 90%of fruits and vegetables. In Hungary one in 17 people dies from pollution.

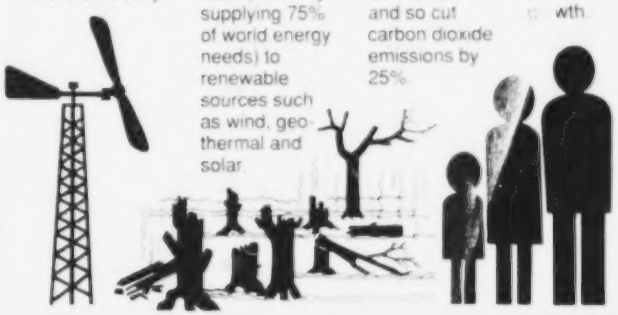
But developing countries are catching up ...

- Annual carbon dioxide output from the destruction of forests, occurring mainly in the Third World, almost trebled between 1950 and 1980-85. And by 2025 developing countries will be emitting 16.6 billion tonnes of carbon dioxide annually – three times their present level.
- Emissions from industrial sources in the Third World rose 16-fold between 1950 and 1980-85.
- The number of cars in the world is set to grow from 400 million today to 700 million over the next 20 years. Much of that growth will occur in the developing world which currently owns only 12% of the global car fleet.

OPTIONS

Keeping open the options for the future is only possible if we:

- Use energy more efficiently.
- Shift from fossil fuels (currently supplying 75% of world energy needs) to renewable sources such as wind, geothermal and solar.
- Halt deforestation and so cut carbon dioxide emissions by 25%.
- Slow down population growth.



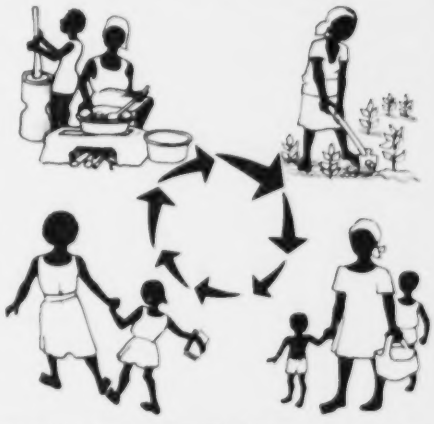
Women at the centre

To achieve a better quality of life for parents and children today – and to keep options open for future generations – the status of women, and their access to education and health, must be improved now.

EDUCATION SAVES LIVES

A mother's education is the single most important factor in keeping her family small and her children alive:

- In Kenya, for every 1,000 babies born to mothers with no education, 109 children under five are lost. This compares with 72 for mothers with primary education and 64 for those with secondary education.
- If women in Bangladesh were able to stop having children when they wanted, 72% of maternal deaths among older women would be averted.
- Women with seven years' education tend to marry four years later, and have 2.2 fewer children than those with no formal education. Educated women in Africa are four times more likely to use contraception than their uneducated sisters.



CYCLE OF SACRIFICE.

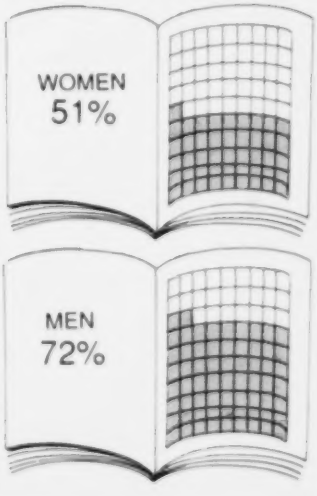
Women are responsible for 70% of food production in Africa, as well as child-rearing and housework. Because of the African woman's burden she is more likely to take her daughters out of school to help her in the home. Girls out of school are likely to marry younger and have more children. Birth spacing reduces the women's burden and so helps break this cycle of sacrifice.

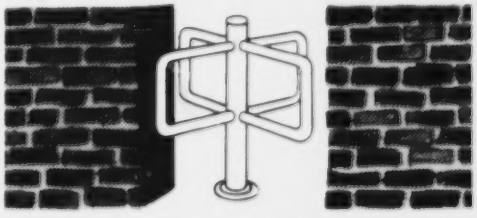
INEQUALITY PERSISTS

But the proportion of secondary-school-aged girls receiving education remains low:

In 1986, 56% of secondary-school-aged girls in Latin America received education; the figures were 39% in Arab states, 33% in Asia and 21% in Africa.

Women make up almost two-thirds of the illiterate adults in developing countries. In 1985, only 51% of women could read, against 72% of men.





ACCESS TO FAMILY PLANNING

The results are dramatic ...

- In 1974 only 12% of women in Mexico were using modern methods. Thanks to improved access to contraception this doubled by 1976 and doubled again in 1982.

But the need is not always met ...

- In Africa only 23% of women who want no more children are using contraceptives. In Asia the figure is 43% and in Latin America 57%.

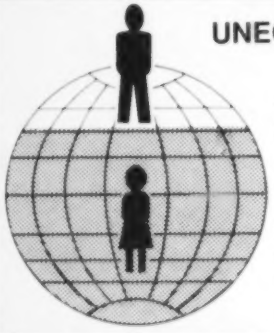
And the obstacles may be hidden ...

- Clinics may be open at times unsuitable for working women who may not be able to take off the average two hours needed to travel to a clinic – or once there wait the usual 60 minutes to be seen by a health worker.

Graphics Clive Offic

Men must share responsibility

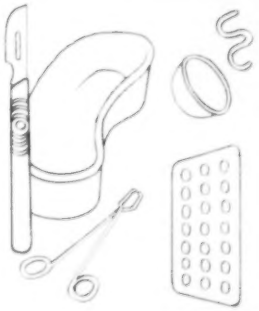
Men are often ignored in family planning campaigns. It is left to the women to take responsibility for contraception. But unless men can be encouraged to change their attitudes – and behaviour – population is likely to continue growing too fast for the earth's resources to sustain.



UNEQUAL METHODS

STERILIZATION

Sterilization is the most common method of contraception in the world. But more than twice as many women as men are sterilized – 119 million women compared with 45 million men. In developing countries male participation is even lower – only one quarter of sterilizations are male – although the operation is far safer, simpler and cheaper for men than women.

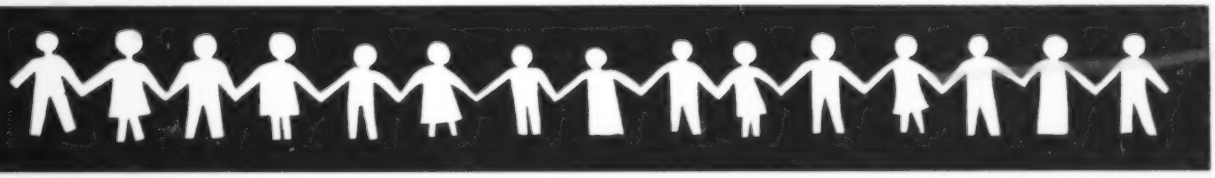


IUDs

Intra-uterine devices (IUDs) are the second most popular method with 84 million users – all of them women.

THE PILL

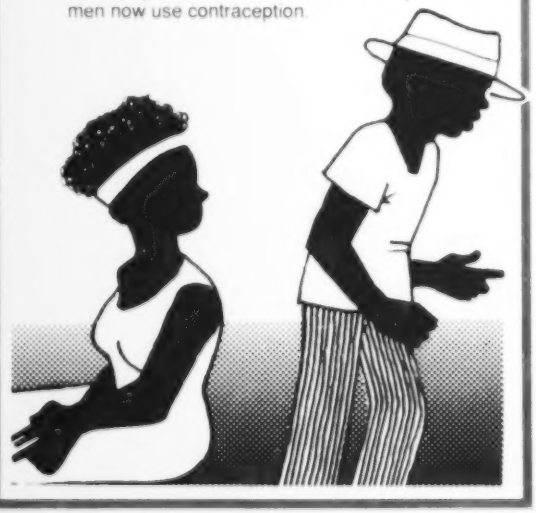
The Pill has 67 million users – all of them women.



MENTAL BLOCKS

Male attitudes can often prevent family planning ever taking place

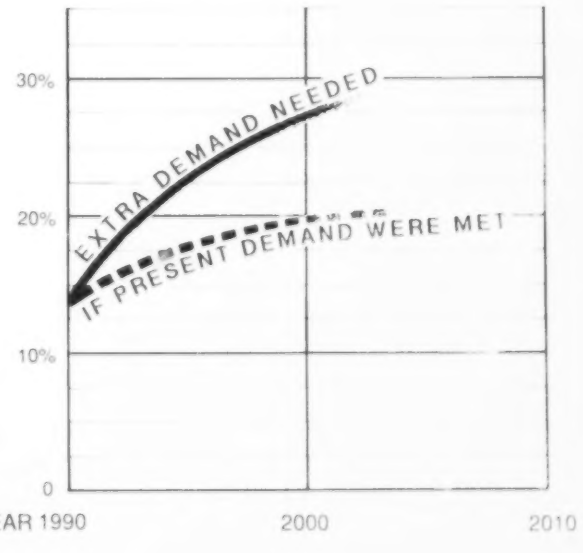
- A Kenyan survey showed that more men knew about family planning than women but 35% of men never discussed it with their wives. Women feared their husbands would beat them if they were discovered to be using family planning.
- Men are often neglected as a target group by family planning policy-makers – even in countries with strong campaigns. In Thailand, for example, 67% of women but still only 7% of men now use contraception.



Graphics: Clive Offley

NEW DEMAND

For Africa to reach the internationally-agreed "medium projection" contraceptive use will have to increase to 27% by the year 2000. But meeting present demand is not enough – contraceptive use would only increase the proportion to 17-23%. So new demand for family planning must be created. One of the most important means is to involve men more closely.



Pushing the limits: World population is growing at a rate of three people per second – or a quarter of a million people per day. This is faster than at any point in history. The most rapid growth is in developing countries. But will the earth's damaged environment be able to sustain such numbers into the 1990s and beyond?

Photo : Carlos Reyes
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UNFPA "State of World Population" Report 1990

Women at the centre: Marilene de Freitas (left), from Brazil, has broken with tradition in a radical way. Not only has she chosen to have two children – she is also determined to bring them up by herself. Euphemia Okonkwo (right) from Nigeria comes from a culture which expects her to have 10 or 12 children (below) and belongs to a religion which forbids contraception. But she too has gone her own way – deciding that three children is enough.

Photos : Sandra Necchi; Elizabeth Obadina; Maggie Murray/Format
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Men for a change: Gimmicks – such as getting elephants to distribute free condoms – may not always change male attitudes towards contraception. But they certainly arouse curiosity – and that is a start in trying to get men to share responsibility for family planning.

Photo : Mark Edwards
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UNFPA "State of World Population" Report 1990

A critical balance: With growing environmental problems and poor family planning services, eastern Europe's problems mirror those of the developing world. Unless the region can clean up its act, there will be little chance of balancing its future development with the needs of its people.

Photos : Liba Taylor/Select

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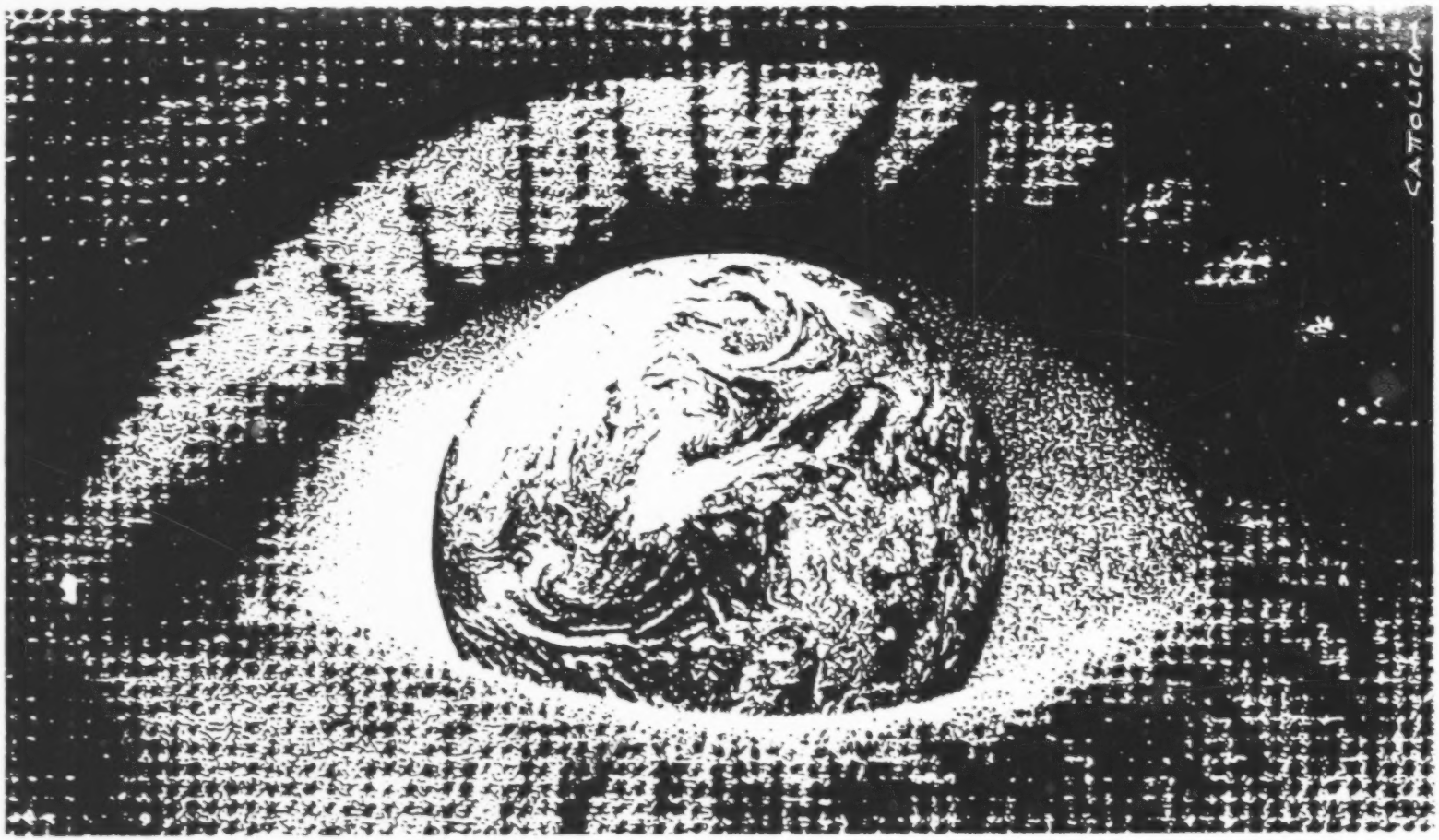

An eye for survival: **Human numbers will grow faster than ever before during the 1990s, while environmental degradation reduces the earth's capacity to sustain human life. The 1990s is therefore a time for "looking further ahead than usual," says the United Nations Population Fund.**

Illustration : Hector Cattolica
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UNFPA

Pushing the limits: **"The quality of human life is inseparable from the quality of the environment", says this year's State of World Population Report. But the quality of life for future generations depends on us. To keep their options open we must reduce population growth – and protect our planet.**

Illustration : Korky Paul

UNFPA "State of World Population" Report 1990

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Women at the centre: **Poor uneducated women have most children and the heaviest workload. Improving the rights of women is crucial if family planning programmes are to succeed.**

Illustration : Mikki Rain
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UNFPA "State of World Population" Report 1990

Polluted plunge: **The dream of industrial growth can soon turn into a nightmare of pollution. Eastern Europe's damaged environment serves as a grim warning to Third World countries – also under pressure to develop fast and cut safety corners.**

Illustration : Hector Cattolica
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UNFPA "State of World Population" Report 1990

Fact charts

Graphic representations of the main facts in the Report and the feature articles by Clive Offley.

Illustrations

Drawings by Hector Cattolica, Korky Paul and Mikki Rain.

Photographs

Photographs by Mark Edwards, Maggie Murray, Carlos Reyes and Liba Taylor.

IMPORTANT

The United Nations Population Fund would very much appreciate receiving clippings of the published articles taken from, or based on, the contents of this press file. Please send press cuttings to: United Nations Population Fund, 220 E. 42nd Street, New York, NY 10017, United States.

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